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Farm Financial Stress, Farm Exits, and Public Sector Assistance to the Farm Sector in the 1980's

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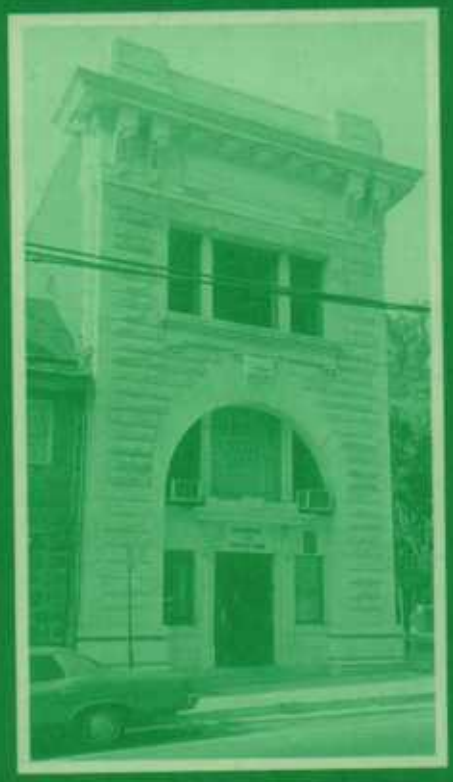

Farm Financial Stress, Farm Exits, and Public Sector Assistance to the Farm Sector in the 1980's. By Jerome M. Stam, Steven R. Koenig, Susan E. Bentley, and H. Frederick Gale, Jr. Agriculture and Rural Economy Division, Economic Research Service, U.S. Department of Agriculture. Agricultural Economic Report No. 645.

Abstract

The U.S. farm sector experienced the worst financial stress during the 1980's since the 1930's. Families leaving agriculture during the decade received considerable national attention, but the numbers were small by historical standards. When adjustments are made in farm numbers because of the 1974 change in the definition of a farm, the average annual decrease in farm numbers for 1980-90 was almost the same as that for 1970-80. This report places the farm financial stress and farm exits in the 1980's into context using a variety of information. The effects of short-term economic events on farm exits, net changes in farm numbers, longrun trends in farm numbers, and public sector support for the farm sector are examined.

Keywords: Financial stress, farm numbers, foreclosure, bankruptcy, income, credit, debt

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The U.S. farm sector experienced the worst financial stress during the 1980's since the 1930's. Families leaving agriculture during the decade received considerable national attention, but the numbers were small by historical standards.

With increased media attention on farm operators leaving agriculture in the 1980's, national attention focused on these exits, which seemed to be the direct result of the "farm crisis." However, only about half of those left for financial reasons. The number of exits, caused by a complex set of forces, actually represents a continuation of a long-term trend of decline. While exits due to financial stress increased, the total number of operators leaving farming and the rate of decline were low by historical standards.

Economic Changes in the 1980's and the Resulting Financial Problems for Farmers

Many farmers began the decade believing that the favorable economic conditions of the 1970's would continue. The economic climate of the 1970's signaled farmers to expand production and benefit from export opportunities and strong commodity prices, farm income, and farmland values. Generous credit from various sources helped finance the expansion. A considerable number of financially extended farm producers were vulnerable to sudden shifts in economic forces. Conditions reversed in the early 1980's when export markets contracted, while input prices and interest rates rose. The financial stress turned to crisis when declines in farm commodity prices, income, land values (the largest asset, used to secure much of the debt) made it difficult for some farmers to service their debts. These economic changes, not an overall lack of efficiency, produced the most severe financial stress for the U.S. farm sector since the Great Depression of the 1930's.

Declines in Farm Numbers

Throughout the 1980's, concern with financial stress in U.S. agriculture was often stated in terms of increased exits from farming because of bankruptcy, foreclosure, and other financial reasons. But a lack of detailed bankruptcy and foreclosure data presents a major hurdle in analyzing farm exit in the 1980's. Best estimates suggest that some 200,000-300,000 farmers became bankrupt, foreclosed, and/or were financially restructured between 1980 and 1988 because of the financial stress in the farm sector. That represents 8-12 percent of all farmers at the beginning of the decade, or an average annual rate of 0.9-1.4 percent.

Additional information on financial stress and exit is available from case studies. Four surveys in Dodge County, Georgia, North Dakota, Texas, and southwestern Wisconsin found that between 3 and 5 percent of farmers left their farms each year during the study periods in the early to mid-1980's. These totals include persons who left farming voluntarily (for retirement or nonfarm employment) and involuntarily. Involuntary exits were those operators who were bankrupt, foreclosed, or out of production because of debt repayment problems, possibility of foreclosure, or inadequate farm income. These same case studies were used to examine the rate of involuntary exit by farm size, but a consistent pattern among small, medium, and large farms was not shown.

As the case studies suggest, farm exit and financial stress were not always linked, even during the worst of the farm financial crisis of the 1980's. Furthermore, the early departure of established farmers from agriculture is only one component of change in farm numbers. Longrun changes in farm numbers occur via the entry and exit of farm operators. There are three components. First is the regular and predictable component, resulting from the aging and retirement of current farmers. Second is the early departure of established farmers, and third and often less monitored is the entry rate of new farmers.

The bottom line regarding farm financial stress and farm exit is the net change in the total number of farms (after accounting for both exit and entrance). While involuntary exits increased in the 1980's, the overall change in farm numbers is not out of line with past changes. In fact, the decline is at an overall lower rate than in earlier decades. The number of farms declined by 296,400 during 1980-90, compared with 509,600 during the 1970's, 1 million during the 1960's, and 1.7 million during the 1950's. Definitional changes in 1950, 1959, and 1974 made the definition of a farm more restrictive and thus lowered farm numbers more quickly than otherwise would have been the case.

The rate of decline in farm numbers was also relatively small by historical standards. The number of farms declined 12.1 percent during 1980-90, which results in the 1980's having the smallest percentage decline in farm numbers since the 1940's. When adjustments are made in farm numbers because of the 1974 change in farm definition, the average

annual decline in farm numbers for 1980-90 was almost the same as that for 1970-80. The 1980's annual average rate of decline, however, was about double that of the preceding stable 1975-80 period.

Virtually all of the decline in farm numbers occurred on farms with 10-499 acres. There was a substantial decline in the number of farms with 50-499 acres between 1982 and 1987. Farm numbers in this acreage range dropped by more than 115,000 between 1982 and 1987, about 75 percent of the total decline in farm numbers. There was also a sizable drop (36,800 farms) in the 10-49 acreage range, about 25 percent of the 1982-87 decline in the number of farms. There was a small decrease in the number of farms with fewer than 10 acres and with 500-999 acres.

A variety of factors besides financial stress influenced these changes in farm numbers. The secular decline in U.S. farm numbers that has characterized the past several decades is explained largely by structural forces that moved people out of farming and increased average farm size. At the onset of the farm financial crisis in the 1980's, U.S. agriculture already had experienced over half a century of major technological change, dramatic decline in the use of labor, and an accompanying move to larger farms. While these structural forces are the primary influence on farm numbers, there is also evidence that cyclical changes in the prosperity of the farm sector may also influence the number of farms. The evidence was borne out in the farm sector's experiences of the 1980's. Farm financial stress peaked during the mid-1980's when generally rising farm incomes, debt restructuring, and appreciating land values signaled the end of the financial crisis in 1987.

The decline in the number of farms was mitigated by a number of forces. Federal and State Governments responded to farm financial difficulties of the 1980's with a massive array of programs and policies to help farmers continue farming and to provide financial stability to the farm sector. Although it is nearly impossible to quantify how many farmers remained in agriculture because of these programs and policies, their presence likely explains why farm exit rates are lower than what might be expected given the economic adjustments of the period. These policies provided income support through commodity programs, new credit assistance programs to farmers, and new legal rights for farm borrowers. These policies also supported ailing farm lenders so that they could continue operating and financing agricultural producers. The dollar commitment by the Federal Government alone reached well over $150 billion during the decade.

It is hard to predict what will happen to farmers in the 1990's. But we do know that financial conditions have improved since the peak-stress period of the 1980's. And unlike those entering the 1980's, farmers today are less vulnerable to sudden shifts in the economic climate because of lower debt loads.

Findings

The 1980's began with many farm producers vulnerable to the sudden shift in economic forces that occurred.

Families leaving agriculture in the 1980's received considerable national attention, but the numbers were relatively small by historical standards.

Involuntary farm exit increased in the 1980's, but the overall change in the number of farms was not out of line with the past.

The changes in farm numbers varied considerably in the 1980's by region, among farms of different sizes, and among farms producing different types of commodities.

The overall picture of the 1980's was one of continued longrun decline in farm numbers, but at an overall lower rate than in earlier decades.

There is a complex set of factors which determines the number of farms, and the decline in the 1980's was mitigated by a number of forces.

A number of Federal and State programs and policies were implemented to alleviate financial stress, and the evidence suggests that they played an important role in assisting the farm sector.

Farm financial stress peaked during the mid-1980's period, and financial conditions have improved since.

The Setting: The 1980's Farm Financial Crisis

Agriculture is both dynamic and risky. During the past two decades, the U.S. farm sector experienced its latest boom-bust cycle, when a combination of forces placed the sector on an economic roller coaster. When the dust settled, farmers found themselves in the worst financial period since the Great Depression.

The 1970's were generally good times for agriculture, with optimistic expectations over worldwide demand for U.S. farm products and inflation. Agricultural exports expanded as the dollar declined in value. Prices for farm commodities rose early in the decade in response to strong demand for feed grains and wheat. Production and investment expanded in a climate of low, and at times negative, real interest rates. In this economic boom, farm borrowing grew and land values increased rapidly. Lenders, consultants, and others often encouraged additional borrowing to finance expansion. Rising machinery investment levels, combined with land price and other cost increases, resulted in a generally higher cost structure for agriculture.

The early 1980's saw a rapid turnaround in the forces that had caused the rapid economic expansion. Back-to-back recessions in 1980 and 1981-82 hit the farm sector hard. A large increase in the value of the dollar reduced the demand for U.S. farm exports. Other countries expanded production in response to generally higher world prices. In the United States, the cost of producing commodities increased into the early 1980's. For example, the index of prices paid by farmers (1977=100) jumped from 108 in 1978 to 159 in 1982 (51 points in 4 years) and only to 177 by 1989 (18 points in 7 years). Monetary policies designed to reduce inflation prompted interest rates to rise to unprecedented levels in the early 1980's. Farm input costs increased, while net farm income generally fell. Returns to land declined due to a reduction in exports and commodity prices, a high cost structure, and even lower returns expected in the future. The declining farmland values weakened farmers' equity positions. Some farmers were unable to make principal and interest payments on the large amount of debt acquired during the 1970's boom period.

The result of these numerous interrelated economic changes in the 1980's was the most severe financial stress for the farm sector since the Great Depression of the 1930's. Financial stress can have a variety of meanings, but it generally is regarded as when a farm household does not have sufficient cash available to meet the cash expenses of the farm operation, family living, and scheduled debt service (*45*).[1]

Deregulation also became an important reality. In the early 1980's, considerable regulatory and other changes in the U.S. financial markets affected the agricultural sector (*12*). The Depository Institutions Deregulation and Monetary Control Act of 1980 and the Garn-St. Germain Act of 1982 substantially deregulated commercial banking. Both geographic and product line barriers that had existed for a long time in the financial services industry were significantly reduced. The Farm Credit Act Amendments of 1980 proposed to update and improve the operation of the Farm Credit System (FCS). The deregulation, coupled with changes in monetary policy and fluctuating inflation rates, significantly altered the financial market environment in which agricultural lenders and borrowers were required to function.

Rural lenders were no longer insulated from outside market forces when market interest rates became highly variable. The unexpected changes in interest rates, particularly the increases in the early 1980's, meant lenders lost earnings on fixed-rate loans. Lenders had to find ways to alter their interest rate risk and insulate themselves from surging and/or variable interest rates. (Interest rate variability during the late 1970's and early 1980's increased the amount of risk above the levels that financial institutions had expected, see *41*.) The fastest and most convenient way to handle the risk was to transfer it to borrowers through variable-rate loans.

Increases in debts, higher levels of interest rates, and expanding use of variable-rate loans spurred rapid growth in interest expenses for the farm sector during the 1977-82 period. Interest as a percentage of total production expenses increased to 15.6 percent in 1982, compared with 8.5 percent in 1975 (and 4.9 percent in 1960) (*71*).

The farm sector financial problems of the 1980's generally arose not because of an overall lack of production efficiency. Rather, the distinguishing feature was the excessive amount of debt held by many farmers as measured by the economic environment of the decade (*33*). The large debts incurred during the late 1970's, undercut by declining land values in the 1980's, overwhelmed the debt-carrying capacity of earnings on some farms. The

[1] Italicized numbers in parentheses identify literature cited in the References section at the end of the report.

challenge presented by the need to absorb large capital losses presented more of a problem than income levels for the sector during the 1980's (*43*). Since 1981, the balance sheet of the farm sector has undergone significant changes, with the debt load being reduced. Agriculture's vulnerability stems from its comparatively high level of capital intensity and its relatively low rate of returns on assets. This combination ensures that domestic agriculture will be highly sensitive to interest rate, price, and production changes (*33*).

Despite the perception of general financial stress until the late 1980's, there was a great deal of diversity within the agricultural sector during the decade. Some 39.5 percent of all farms reporting on USDA's Farm Costs and Returns Survey (FCRS) for January 1, 1986, stated that they had no debt (*74*). Only 13.4 percent of farms with annual sales of $500,000 and over were debt-free, compared with 59.8 percent of farms with sales under $10,000 per year. A total of 33.4 percent of all debt owed to lenders was by farmers with debt/asset ratios of 0.71 or greater (*74*). The continued operation of these farm businesses was threatened, and lenders faced the likelihood of significant losses in their portfolio of farm loans.

The 1980's farm financial stress exacerbated a longrun concern about farm numbers. During the past 60 years, farm numbers have declined despite continued increases in farm production and little change in cultivated acreage. The farm crisis of the 1980's once again drew national attention to the links between financial conditions in agriculture, farm exits, and the changing structure of the farm sector.

Structure of the Report

Goal: Explore what happened to the U.S. farm sector in terms of farm failures, farm exits, farm numbers, and farm structure in the 1980's as it experienced the worst financial stress since the Great Depression of the 1930's.

Approach:

1. Review events of the 1970's and 1980's when agriculture experienced its most recent major boom-bust cycle.
2. Examine the available evidence on farm failures and exits in the 1980's.
3. Analyze farm exits in the 1980's by size of farm.
4. Investigate the evidence regarding when financial stress and farm exit rates peaked in the 1980's.
5. Find how the sector's financial stress affected farm numbers during the 1980's.
6. Compare farm number changes in the 1980's with longer term trends and investigate factors influencing longrun farm numbers.
7. Enumerate Federal and State Government responses to farm financial difficulties and the probable impact on farm sector exits and numbers.

Changes in Farm Numbers Generate Interest

Farm numbers are important because of the implication of related changes on demographic and socioeconomic characteristics of rural areas.

Changes in the number of farms produce broad interest among farmers, policymakers, farm and rural development groups, and agribusinesses. Declines in farm numbers are believed to adversely affect agribusiness firms which market agricultural commodities or supply farm inputs and the well-being of farming-dependent areas. Changes in farm numbers may also have consequences on the demographic and socioeconomic characteristics of rural areas.

The concern with farm numbers follows several themes. At times the focus is on the effect of unfavorable economic events which bring about the demise of financially stressed or unprofitable farms. A related concern is the longrun trend toward fewer and larger farms, stimulated by studies that predict dramatic reductions in farm numbers in the future. Part of the latter focus is centered on the proportion of total agricultural output produced by different classes of farms.

Concern about farm families and the number of farms is also related to the family farm's historical role in our national development. Many view the transitions taking place in the farm sector as a crisis because of the changing way of life (*65*).

This report addresses these concerns, paying particular attention to the effects of shortrun economic events on farm exits, net changes in farm numbers, and longrun trends in farm numbers. This report places the farm financial stress and farm exits in the 1980's into context using a variety of information. Specific objectives are to: (1) present the background and setting of the farm failures, farm exits, and farm number changes in the 1980's; (2) analyze the best available evidence regarding farm financial stress, foreclosures, bankruptcies, failures, and farm exits in the 1980's; (3) examine actual farm number changes in the 1980's compared with earlier decades; (4) look at farm exits by size and type of farm and the implications for farm structure; and (5) analyze the role that Federal and State policies and programs played in affecting farm attrition in the 1980's.

Photo courtesy of William E. Saupe

Farm Exits and Farm Numbers

Farm exit and farm stress are not always linked.

Longrun changes in farm numbers occur via the entry and exit of farm operators. Entry and exit is comprised of three components. First is the regular and predictable component resulting from the aging and eventual retirement of current farmers. Second is the early departure of established farmers. This is a more variable component and often the topic of public interest and debate, in that it includes those who left farming for voluntary reasons and those who left because of financial problems. Third, and often less monitored, is the entry rate of new farmers. These components together account for the net change in the total number of farms (*20, 58*).

Families leaving agriculture in the 1980's because of farm financial stress received much public attention. Many observers believed farm exit and financial stress were always linked. Even during the farm financial crisis of the 1980's, this was not true. Approximately half of the exits occurred because of reasons besides financial stress during the 1980's (see *15, 16, 19, 50*).

During the farm financial crisis of the 1980's, attention focused on the second component, the early departure of established farmers. Intense interest centered on this group was voiced in terms of the subset leaving agriculture because of financial stress. It was difficult, however, to obtain adequate measures of the magnitude of farmers leaving the farm sector in mid-career. A number of indicators and studies shed some light on what happened regarding the early departure group during the 1980's. But these indicators and studies, while useful, yield only parts of the puzzle. The next five sections of this report examine some of the indicators and studies, including their strengths and weaknesses. Areas explored include bankruptcy and foreclosure data, farmland transfer data, longitudinal studies, a Midwest study, and USDA's estimate of forced exits.

Farm Exits, Entries, and Farm Numbers in the 1980's

Longer run changes in farm numbers result from the entry and exit of farm operators, which are comprised of three components:

- **The aging and eventual retirement of current farmers is a regular and predictable phenomenon.** While there are no exact numbers for the 1980's, some observers feel that farmland sales due to the owners' retirement slowed during the most severe portion of the financial crisis. Farmers contemplating retirement were faced with declining land values, and many opted to wait for the market to improve before selling.

- **The early departure of established farmers, often the subject of public debate, is the most variable element.** During 1980-88, some 200,000-300,000 farmers became bankrupt, foreclosed, and/or were financially restructured because of financial stress in the farm sector. A significant number of these farmers remained in the sector, but at a greatly reduced scale of operation.

- **The entry rate of new farmers is often overlooked in estimates of changing farm numbers.** The 1980's farm crisis was almost always discussed in terms of its effects on exits. While no exact numbers exist, it appears that adverse economic conditions were seen most significantly in the slowed entry of new farmers during the decade compared with previous decades. The decline was especially significant among young farmers.

These three components combine to determine the bottom line: changes in farm numbers. Total farm numbers declined by 296,400 during 1980-90. This compares with 1.7 million during the 1950's, 1 million in the 1960's, and 509,600 in the 1970's. (Changes in the definition of a farm in 1950, 1959, and 1974 lowered the numbers more than otherwise would have been the case.) Total farm numbers declined 12.1 percent during 1980-90, the lowest percentage decline since the 1940's when 11.1 percent left the sector.

Exits Versus Entries in Perspective

Sizable gross flows of entry into and exit from farming, combined with trends in expansion and contraction of continuing farmers, produce the modest but enduring net changes in the economic concentration of agriculture observed in the United States:

- A decline in farm numbers can reflect either increased exits of farmers or reduced entry of new farmers. It was often assumed that the 1980's decline in farm numbers was due to a greater rate of involuntary exit resulting from numerous bankruptcies, foreclosures, and forced liquidations during the farm financial crisis.

- The focus on increased exits in the 1980's follows the historical concern with farm exits and farm numbers. Farm exits that are forced through financial stress often result in personal trauma and often involve the disposition of sizable amounts of assets and debt. While the impact of the 1980's farm financial crisis is almost always discussed in terms of its impact on exits, it appears that the adverse economic conditions of the period may have affected entry more than exits.

- Changes in entry and exit also may be influenced by factors other than financial conditions, such as a large cohort of farmers reaching retirement age (leading to a higher exit rate) or to a declining pool of farm-reared young people or improved nonfarm job opportunities (leading to a lower entry rate).

- The 1980's saw a decreasing rate of voluntary exit from farming, as the general economy's slowdown in the early 1980's slowed the exodus from farming to nonfarm jobs. As the voluntary exits were decreasing, involuntary exits may have increased, but not enough to offset the decrease in voluntary exits. This would explain the unexpected lower rates of total exit in many areas where the farm financial crisis was believed to have increased exits.

- The greater net decline in aggregate U.S. farm numbers during the early and mid-1980's appears to have been greatly influenced by less entry rather than increased exit, with much of the decline in the entry occuring among young farmers (*28*). Entry of new farmers fell substantially during the mid-1980's in most areas of the Nation, while exits rose in some areas and fell in others. The slowing of farm-nonfarm migration reduced voluntary exits in the mid-1980's, and farm assistance legislation and other programs reduced involuntary exits.

- Decreased opportunity for entry yields lower entry rates. While this can be a disappointment to some young people desiring a career in agriculture, it probably does not involve the trauma connected with the forced dissolution of a farm with substantial assets.

Bankruptcy and Foreclosure

One of the most visible signs of financial stress in the farm sector was the number of farm bankruptcies, foreclosures, and forced liquidations. While exits of this type raise concerns about U.S. farm structure, farm bankruptcies and foreclosures are not always the best indicators of farm sector financial stress.

During the 1980's, financial stress in agriculture often was viewed narrowly in the context of bankruptcy, foreclosure, or forced liquidation causing the farmer to leave the sector with resultant consequences on farm sector structure. The secular flow of labor out of agriculture, bankruptcy and other forms of forced exits, and changes in the structure of the farm sector have long been topics of interest to researchers and public policy analysts (*5, 6, 7, 23, 54, 56, 57, 75*). In the 1980's, however, the worst farm financial stress in half a century caused increased farm bankruptcies and foreclosures to be seen by some as a leading indicator of farm sector problems.

A key problem arose because no available evidence allows a direct appraisal of the validity of the claim that increased farm bankruptcies and foreclosures are key leading indicators of farm sector stress. Nobody knows exactly how many such forced exits occurred in the 1980's. The rate of bankruptcy in the farm sector would provide some indication of financial stress, but this would be a lagging indicator at best. Farms also can fail as a result of loan foreclosures and voluntary liquidations. Until 1979, the annual rate of farm bankruptcies was recorded. Those bankruptcy filing statistics specifying a filer's occupation, including farming, were recorded by the Administrative Office of the U.S. Courts through October 1979, when The Bankruptcy Reform Act of 1978 (P.L. 95-598) terminated data collection.

There was no longer any distinction made between farm bankruptcies and those of other businesses after this date. The only exception is quarterly data on those who filed for bankruptcy protection under chapter 12, the new bankruptcy provision allowing farmers to restructure their debts under specially designed rules that took effect on November 26, 1986. Farmers still may file under the earlier chapters 7, 11, and 13 bankruptcy provisions, so chapter 12 filings represent only a portion of all farm bankruptcies and an even smaller, unknown share of all farm financially induced exits.

There has been some research on historical farm bankruptcy rates, but this work is necessarily limited in time frame, because the data series ends in 1979. For example, Shepherd and Collins conducted an econometric analysis of farm bankruptcies (using an aggregate time-series approach with bankruptcy and selected other data) for the 1910-78 time period (*56*). Their work suggests that before World War II, leverage and farm size were the controlling influences on farm failure rates. That is, as farms increased in size, producers were better able to withstand adversity, but higher debt-financing coincided with higher frequency of failure. Following World War II, larger farm size tended to correlate with greater vulnerability to bankruptcy. As farms used more capital-intensive production methods, variation in farm income became the most important influence on failure rates. Higher levels of debt-financing were not associated with increased incidence of farm failure after World War II, but this research was completed prior to the farm financial crisis of the 1980's. Shepherd and Collins did note a strong link between failures in the agricultural and nonagricultural sectors, indicating that Federal general economic (macroeconomic) policies may bear heavily on the success of farms. This was borne out in the 1980's when the recessions early in the decade severely affected the farm sector.

The lack of detailed bankruptcy and foreclosure data is a hurdle in analyzing farm exits in the 1980's. But even if complete and conceptually sound farm bankruptcy and foreclosure data existed, challenges would remain. For example, the data would have to account for the fact that farm financial stress induced many farmers to sell or transfer land in ways to avoid bankruptcies or foreclosures.

Caution About the Data

The commonly used measures of farm failures--bankruptcies, foreclosures, and net exits--each have severe limitations.

Bankruptcy filings represent a subset of farm failures and do not necessarily imply exit from the sector. Available data are sporadic and incomplete.

Foreclosures represent a subset of farm failures and often, but not always, are associated with "involuntary exit." Available data are sporadic and incomplete.

Net farm exits sometimes are used as a substitute because of the lack of bankruptcy and foreclosure data. Net farm exit data are available, but they do not imply failure and they undercount gross exits. Moreover, the relationship between net farm exits and exits due to financial problems is not entirely clear.

Farmland Transfers

Lack of detailed bankruptcy and foreclosure data presents a major hurdle in analyzing the 1980's farm exits. One way to examine farm exits is to find the reasons for changes in farm real estate ownership.

Rural land changes hands for a variety of reasons, and these reasons often influence the method of transfer. Voluntary sales, which account for most rural transfers, are arm's-length sales in the open market. A small portion of farmland transfers also takes place as a result of legal or financial pressures. Some landowners sell, for example, under threat of foreclosure, bankruptcy, or condemnation (tax sale), or through special conditions between relatives.

The number of transfers varies, and is the result of differences in both the number of parcels and the rate of different methods of transfer. Actual numbers of land transfers by the method of transfer, however, are elusive. While there are several useful estimates, their strength is moderated by several limitations.

USDA collected data on the number of farm ownership transfers per 1,000 farms by the type of transfer, including voluntary, estate settlements, foreclosures, and others until 1981, when the data series was discontinued because of methodological problems (*73*). This data series was based on a survey of crop reporters (farmers). In 1980, for example, they were asked to count the number of farms adjacent to their farm and report the number of changes of ownership. Whole farm and parcel changes were not distinguished, but if the "property" changed hands more than once during the previous 12 months, each transfer was also to be reported separately. The number of each method of transfer was also reported separately. The number of farms and ranches by method of transfer was derived from an expansion of the sample based on the census of agriculture.

There were several limitations of this earlier survey: (1) respondents were limited to a panel of crop reporters; (2) respondents were farmers not landowners; (3) the unit of reporting (surrounding farms) was open-ended, hence not statistically identifiable; and (4) the unit of transaction was ambiguous, with the questions posed in terms of "property" (not specifying parcel or whole farm), yet expansions were in terms of farm numbers. As of the April 1982 crop reporter survey, USDA's Statistical Reporting Service stopped collecting the method of transfer data, so there are no transfer data from 1982 to 1985.

A new method of transfer questions was added to USDA's annual Farm Land Market Survey of brokers and other real estate intermediaries in 1986. The respondents were asked their opinion of the percentage of farm real estate transfers in the county that were: voluntary and estate sales; family transfers; foreclosures, bankruptcies, and condemnations; and other sales and transfers. These data, while useful, cannot be strictly compared with earlier data. Until 1981 (on the earlier crop reporter survey), foreclosures and bankruptcies included assignments and transfers to avoid foreclosures.

From 1986 to 1990, the Farm Land Market Survey included condemnation sales in the foreclosures and bankruptcies category, but transfers to avoid foreclosures were not included.

The 1986-90 *Agricultural Land Values and Markets Situation and Outlook Reports* reported the method of transfer in percentage terms only (not total transfers or transfers per 1,000 farms) (*70*). In contrast to the separate tabulations before 1981, voluntary and estate transfers were combined beginning in 1986. Table 1 shows comparable figures for the last 3 years of the earlier series and the first 5 years of the current series.

The information in table 1 should be tempered by the fact that the current Farm Land Market Survey has several limitations: (1) it is based on an accumulated list of voluntary reporters--brokers, financial officers, public credit officials, and so forth--not on a statistical sample from an identified population; (2) the reporters do not normally have access to the information on the method of transfer; and (3) transfers are not specified in terms of any units, such as parcels or farms.

Table 1--Farmland transfer estimates
Transfer rates vary, reflecting different economic conditions and different survey methods. The 1986-90 data show a jump in the share of forced sales and a relative decline in voluntary and estate sales.

Data series and year	Voluntary and estate sales	Forclosures, bankruptcies, tax sales, family transfers, and other sales and transfers
	Percent	
Earlier data series:		
1979	81.9	18.1
1980	81.9	18.1
1981	81.1	18.9
New data series:		
1986	57.0	43.0
1987	54.0	46.0
1988	60.0	40.0
1989	66.0	34.0
1990	70.0	30.0

Sources: (*70*, *73*).

Photo courtesy of Stephen R. Koenig

Longitudinal Studies

Four case studies found that between 3 and 5 percent of farmers left their farms each year. Between 2 and 3.5 percent did so because of bankruptcy, foreclosure, or other financial reasons.

The lack of bankruptcy and foreclosure data forces one to look for other information on farm exits. Generally, little is known about the exit dynamics of farm operators except when driven by financial crisis (*42*). But even with regard to financial stress, few analyses are available examining the characteristics of producers actually forced out of agriculture (*4*, p. 121). The problem is that estimates of farm exit rates have been attempted, but no available data at the national level allow one to follow the same households through time. To determine who has left farming involuntarily and what types of problems have occurred, special longitudinal studies and other analyses are desirable.

Four recent longitudinal studies offer some information on farm exit during the farm crisis of the 1980's (*4*, *15*, *16*). These case studies focus on farm operators in southwestern Wisconsin, Texas, North Dakota, and Dodge County, Georgia. They vary in scale and scope, but are the only U.S. studies that have measured farm attrition in repeated interviews of the same group of randomly selected farm operators during the early to mid-1980's.

Because each study was conducted independently, variations in design exist. The rates of farm exit are not strictly comparable across the four case studies. In Wisconsin, the sample consisted of operators of family-operated farms with at least $1,000 in annual farm product sales. In North Dakota and Texas, farm operators who were under 65 years of age, considered farming their primary occupation, and sold at least $2,500 of farm products annually were included in the surveys. The Georgia sample included full- and part-time farmers, but excluded farmers who were receiving Social Security or who called themselves retired.

The four studies found that between 3 and 5 percent of farmers left their farms annually (table 2). These totals include persons who left farming voluntarily as well as involuntarily (and exclude those who died during the study period). Between 2 and 3.4 percent of farmers involuntarily left farming each year. Involuntary exits were those persons who were bankrupt, foreclosed, or out of production because of debt repayment problems, possibility of foreclosure, or inadequate farm income. Individuals voluntarily exiting typically left farming for reasons of health, age, or occupational mobility.

A separate report on the North Dakota and Texas studies dealing with a shorter time span (1985-86) at the height of farm financial stress yielded somewhat different results (*49*). In both States, the total proportion of producers leaving farming (both those who would and those who would not agree to be re-interviewed in 1986) was estimated to be between 4 and 5 percent (*49*, pp. 186-87). This was a substantial percentage for a single year. In Texas, farmers who were less well-educated and innovative and who were operating smaller farms were more likely than others to leave agriculture as a result of the farm crisis (*4*). It also appeared that the farmers who left agriculture were not drawn randomly from the population of financially stressed farmers, but were those with particularly disadvantaged socioeconomic characteristics (*4*).

Table 2--Annualized rate of farm loss in four studies [1, 2]
Between 3 and 5 percent left farming each year, about half of whom did so for financial reasons.

Item	Dodge County, Georgia 1981-86	North Dakota 1984-87	Texas 1984-87	Southwest Wisconsin 1982-86
		Percent		
Annualized rate of loss:				
Involuntary exit	2.81	3.05	3.40	1.98
Voluntary exit	1.82	NA	NA	3.26
Total	4.63	NA	NA	5.24

NA=Not available.
[1] Excludes those who died during the study period (except Texas).
[2] Rates should not be strictly compared across study areas due to differences in the populations sampled.
Source: (*15*).

Midwest Study

When asked about their immediate plans at the height of the farm crisis, an average 5.1 percent of farm operators in a nine-State area of the Midwest expected to leave farming in 1986. Personal, not financial, issues were cited as the main reasons.

Another study that yielded some evidence regarding farm exits at the height of the farm financial crisis was a farmers' survey coordinated by the Midwest Association of State Departments of Agriculture (*55, 89*). This survey polled farmers in a nine-State area regarding their financial status and plans in January 1986. The States participating were Illinois, Iowa, Kansas, Michigan, Missouri, Ohio, Nebraska, North Dakota, and Wisconsin.

According to this survey, problems stemming from farmers' loan delinquencies were related to the length of time operators expected to remain in farming. When asked how long they would remain in farming if current income and expense trends continued, 11 percent of North Dakota farmers said they could not remain past 1987. Almost 61 percent of these reported being delinquent on their farm loans. Yet less than 3 percent of those expecting to farm until retirement reported delinquent debts. The relationship between high, delinquent debt loads and plans to leave farming within the next year was not as clear. Some evidence suggested that lack of off-farm employment opportunities hampered the exit of many operators.

When asked about their more immediate plans, an average 5.1 percent of farm operators in the nine-State area expected to leave farming in 1986. Planned 1986 exits varied from a high of 6.4 percent in Nebraska to a low of 3 percent in North Dakota. Overall, financial problems were not identified as the main reason for expecting to cease operating. This finding varied markedly, however, by State and by farm size.

For example, in Ohio, 60 percent of family-sized farm operators planning to quit cited financial problems as the main reason, compared with 40 percent of those leaving in all nine States. Operators anticipating giving up their farms in Missouri said that personal reasons dominated their decisions.

Results from different farm financial stress surveys of the 1980's should be compared with caution:

- The studies were conducted independently, each based on different methods and different sample types and sizes.
- The results cannot always be used to draw detailed nationwide implications.
- While the data from one study may not be strictly comparable with another study, the general conclusions are often comparable.

Farm Failures in Perspective

Some 200,000-300,000 farmers became bankrupt, foreclosed, and/or were financially restructured because of farm sector financial stress between 1980 and 1988. But these farmers do not represent a net decline in farm numbers of the same magnitude. Rather, they are only one part of a complex process determining net changes in farm numbers that includes farm entries and farm exits for all reasons, both voluntary and involuntary.

National estimates of the actual number of farms that failed in the 1980's or that likely will fail in the future because of the financial stress of the 1980's are scarce. Murdock, Potter, Hamm, Backman, Albrecht, and Leistritz estimated that 213,500 farmers in the 472 farming-dependent counties will discontinue farming between 1985 and 1995 due to the long-term implications of the farm crisis (*50*, pp. 143, 145). (Farming-dependent counties are nonmetropolitan counties in which agriculture generates 20 percent or more of total earnings.) More than 60 percent of these were projected to be midsized farms with annual sales between $40,000 and $250,000 (*50*, p. 167). The 213,500 farm failure figure during the 10 years was termed conservative by the researchers (*50*, p. 145). According to USDA analysis, the "...best we can tell by piecing together various bits of information..." is that some 200,000-300,000 farmers became bankrupt, foreclosed, and/or were financially restructured because of farm sector financial stress between 1980 and 1988 (*21*).[2]

There is some evidence suggesting that farm failures may be serious for those directly involved, but limited in terms of the total impact on the sector as a whole regarding its overall ability to function and produce. Two factors moderated the impact of farm business failures on the structure of the farm sector in the 1980's. First, farm financial conditions (falling asset values, tighter farm credit markets, and related factors) discouraged voluntary exits from the sector, so increased involuntary exits were offset, to some extent, by fewer retirements and other farm transfers. Second, many failed farm operators remained in the sector with a drastically reduced scale of operation or re-entered the sector soon after failure (also at a reduced operating scale), despite their original business failure.

Overall Changes in Farm Numbers

Changes in farm numbers are often implicitly assumed to be linked on a one-to-one basis with changes in exits. As a result, the higher rate of exit in the 1980's due to foreclosures and bankruptcies has been used as a proxy for the rapid decline in the number of farms. The alleged more rapid decline in farm numbers in the 1980's was assumed to reflect greater numbers of foreclosures and bankruptcies. Although there is certainly a strong link between forced exits and changes in the rate of decline in farm numbers, the process is more complex.

Two additional factors must be considered: the rate of entry into agriculture (which was lower in the 1980's than in the late 1970's), and the extent to which forced exits replace voluntary exits. By the late 1970's, the number of younger operators beginning farming dropped sharply, and the rate of entry of commercial farmers continued to decline through the mid-1980's (*58*, *59*). Some observers are concerned that the low numbers of young people entering farming as a career and the low rate of retirement of current farmers together may hasten the decline in farm numbers, increase average farm size, affect the balance between farm operators and farm owners, and retard U.S. farming's productivity growth (*59*).

If new entrants occur for all exits, there will be no net change in the number of farms. Gross exits and gross entries may be large or small numbers as long as both are the same magnitude. Therefore, using gross exits alone without consideration of entries tells one little about net changes in farm numbers. Further, if one observes only a single component of the gross exit number, say involuntary exits, one cannot necessarily conclude that the entire exit rate changes similarly. For example, voluntary farm sales may decline in a period of financial stress as those with the ability to wait for improved conditions hold their land off the market.

In a normal year, 3 to 4 percent of farm operators cease farming for a variety of financial and personal reasons. In periods of economic stress, farm exits due to financial reasons increase. But the number of farmers who are forced to take actions to cease operating is problematic. Evidence suggests that some displaced farmers with good management skills re-enter the sector, renting a large share of their land

[2] This compares with the 516,000 decline in manufacturing jobs in nonmetropolitan counties during the 1979-82 recession period (*48*). A total of 57.9 percent of this decline occurred in counties adjacent to metropolitan counties. Therefore, the decline may not have caused a large amount of dislocation and migration as workers switched to other available nonmanufacturing work. The 1979-82 decrease in manufacturing jobs was followed by a 235,000 increase in such employment in 1982-86.

and equipment. This type of transition likely increased in the 1980's. As noted, there are no exact national numbers of the rates of farm failure. Some observers felt that the farm exit rate reached 5 to 6 percent per year during the period of peak farm financial stress during the mid-1980's, with financial failure accounting for about half that rate. The exit rate appears to have since dropped back to the historical norm as the farm financial picture brightened.[3]

The process of farm exit is complex, for it involves a variety of factors, such as the disposal of farm assets and debts, finding new employment, and dealing with the psychological adjustment of farm loss. The process of farm exit also often requires considerable time. Research has shown that some operators reaching insolvency have been able to postpone loss of their farm for years, suggesting the farm crisis is a complex and slowly unfolding process. Farmers unable to obtain further credit do not necessarily cease operating immediately, but may continue in business with funds from off-farm income, short-term credit from suppliers, and personal loans. Some remain in operation for several years despite nonpayment of debts and while negotiating with creditors.

[3] The exit percentages may appear to be high at first glance, but a small change in farm numbers and farm size masks larger underlying offsetting changes. Gross entry and exit or turnover are much larger than indicated by net changes. Historical U.S. data shed light on this phenomenon. For example, based on longitudinal data from the census of agriculture, it is estimated that 27 percent of all U.S. farms in 1978 exited the sector by 1982, or 6.75 percent per year (*29*). Published data from the census of agriculture's "years on present farm" series yield exit estimates of 18.6 percent (4.65 percent per year) for 1978-82 and 23.7 percent (4.74 percent per year) for 1982-87 (*28*). Excellent historical data exist for Canada and they show a similar picture of dynamic change in the farm sector of another industrialized nation. Canadian average annual farm exit rates were 5.27 percent for 1941-51, 5.58 percent for 1966-76, and 5.94 percent for 1976-81 (*24*).

Definitions of Farm Failure

In estimating the rate of involuntary exit, one needs to look at what forced the exits to occur, such as farm failure. Various definitions of what constitutes a business failure are used (see below). But when applied to the farm sector, none of the definitions implies that the farm operator necessarily has to exit the sector immediately when his or her farm business fails.

- **A business fails** when it is unable to fulfill normal business obligations; that is, when earnings and the value of unsecured assets are insufficient to cover liablilities.
- **Failure is synonymous with insolvency**, meaning the business' liabilities exceed the value of its assets.
- **A business becomes an economic failure in the long run** if expected returns fail to meet or exceed the costs (real and opportunity) of the resources used by the business.

Exit Rates Varied by Farm Size

The consequences of involuntary exit in the 1980's on U.S. farm structure are not yet completely understood. The case studies did not show a consistent pattern when exit rates were examined for small, medium, and large farms.

The case studies of farm operators forced out of farming in the early to mid-1980's found that exit rates varied by farm size. While some observers predicted that the farm financial crisis would lead to further concentration of farmland into large enterprises, the longitudinal studies described earlier did not show a consistent pattern of exit among small, medium, and large farms in southwestern Wisconsin, Texas, North Dakota, and Dodge County, Georgia (*15*, *35*, *44*, *88*).

Because the study areas contained considerable diversity in agriculture, the samples were analyzed by two measures of farm size--acreage and gross sales--each broken into three groups, or terciles. In all the studies but North Dakota, farm acreage was estimated according to harvested crop acreage instead of total farm acreage so that the measure of scale would not confound acreage of wasteland, timber, and pasture. Farm size based on gross sales was also estimated because some commodities are high in value although produced from small acreage. The cutoffs for the terciles differed for each study, permitting examination of the exit rates of the operators of small, medium, and large farms in each study area.

Using both size measures, the studies for southwestern Wisconsin and North Dakota found that operators of large farms were more resilient than those of small- and medium-sized farms (fig. 1).[4] Differences in exit rates by only the sales measure were more pronounced, showing lower attrition as farm size increased. The studies in Texas and Dodge County, Georgia, on the other hand, show different patterns. Operators of medium-sized farms (by both measures of farm size) had the highest exit rates in Texas, but the lowest rates in Dodge County, Georgia.

Southwestern Wisconsin

Operators of small farms in southwestern Wisconsin had the highest rate of exit by both measures of farm size. Examining the characteristics of involuntary exits in more detail, Bentley and Saupe found that, compared with operators who stayed in farming between 1982 and 1986, operators who exited involuntarily were more likely to have operated nondairy farms and less likely to have operated large dairy farms (with gross farm sales over $65,000 in 1982) (*16*). And while the involuntary exits operated farms of similar acreage in 1982, they had, on average, significantly less gross cash farm income (gross farm sales plus other farm-related receipts). The involuntary exit operators were also more likely to have worked off the farm during 1977-82.

Texas

While farm loss in Texas was spread broadly among operators of small, medium, and large farms, medium-size farms had the greatest attrition. This is consistent with findings from an earlier phase of the study, covering 1985 and 1986. Albrecht and others compared the farms of operators who left agriculture between 1985 and 1986 with those who remained in farming in 1986 on three measures of farm size (*3*). The data indicated that gross sales were significantly greater in 1984 for the farms where the operator quit farming (N=28 for this variable) than where the operator remained in farming. The opposite pattern occurred when examined by total acreage. However, the farms of those who left farming and the farms of operators remaining in farming were similar in terms of average acreage of cropland. The authors concluded that, "...considered as a whole these data suggest that farm failure is most common among farms of medium-size where most of the acreage is utilized in crop production. Farm failure was much less common among farms with extensive amounts of range or pasture land." (*3*, p. 50).

North Dakota

Figure 1 shows that farm exit in North Dakota was more evenly distributed among the farm acreage classes than in any other study area. By sales class, though, the rate of involuntary exit was highest among operators of small farms. The interview data suggest, however, that financially stressed farmers had begun to liquidate their farms, thereby decreasing their sales, when the data were collected in 1986.

In a related study in North Dakota, Leistritz, Ekstrom, and Rathge surveyed 169 farmers in 1986 who had left farming for financial reasons (*46*). Financial characteristics of these former operators were compared with those of farmers still operating farms in the State in 1986 (using the longitudinal study reported above). The average gross cash farm income of the former farmers during the last complete year that they operated their farms was

[4] It is important to note that both the North Dakota and Texas samples excluded farm operators who did not consider farming to be their primary occupation. The southwestern Wisconsin data represent all operators with at least $1,000 in farm product sales. The sample in Georgia included full- and part-time farmers but excluded operators who received Social Security or who called themselves retired.

about $100,000, which was similar to the incomes reported by continuing operators. Leistritz, Ekstrom, and Rathge concluded that, "...thus, most of the respondents appear to have been operating commercial-scale family farms. There also appears to be very little difference between the distribution of gross farm incomes of former farmers and of currently operating farmers." (*46*, p. 6).

Dodge County, Georgia

Both measures of farm size suggested that operators of medium-sized farms in Dodge County, Georgia, had an advantage in surviving the crisis. The higher rate of exit among larger farms may reflect greater vulnerability of large farms in Dodge County, or it may reflect a later phase in farm attrition. Five years of drought in the study area preceded the farm financial crisis, and the exit pattern may reflect this longer crisis period.

Operators of the smallest farms, as measured by acreage, in Dodge County had the highest attrition rates, but nearly 88 percent of the operators in the smallest tercile were farming part-time and working at least 200 days per year off the farm. Most of these operators were people whose farms were originally second jobs and not the primary source of income for the family. The medium and large farm terciles contained mostly full-time farmers.

Attrition Rates

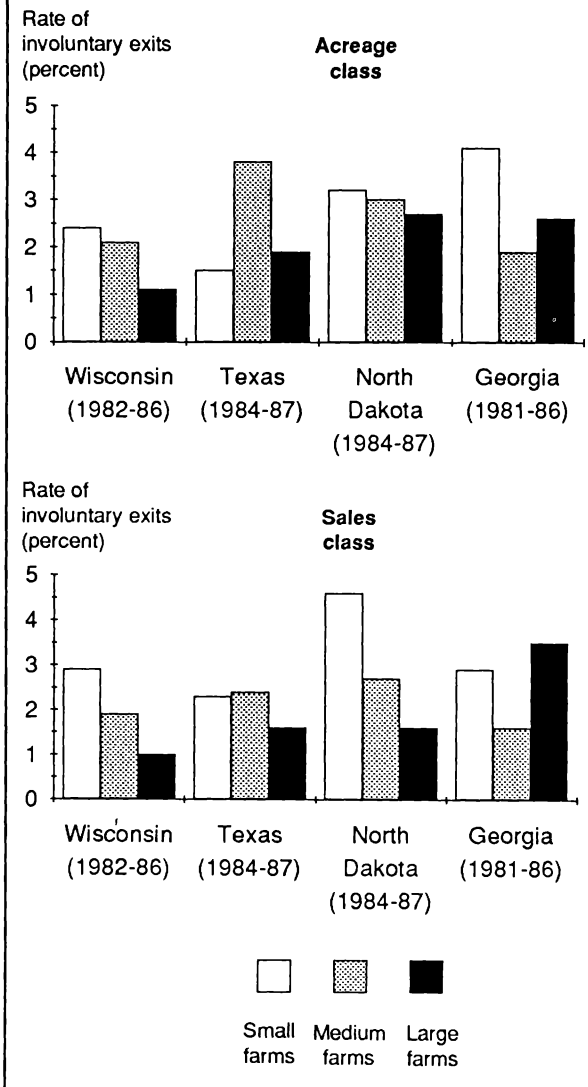
While the four studies did not find a consistent pattern of exit among operators of small, medium, and large farms, the rate of involuntary exit was generally lowest among the operators of large farms (with the exception of large farms, as measured by gross farm sales, in Georgia). This would seem to support the predictions that farms are becoming more concentrated into large enterprises. In the two studies where part-time operators were included (southwestern Wisconsin and Dodge County, Georgia), operators of the smallest farms, measured by harvested crop acreage, had the highest rates of farm attrition. And in Georgia, where the farm crisis was more sustained as a result of the 5 years of drought preceding the national financial crisis, it was noted that operators of larger farms were able to postpone foreclosure more successfully than were operators of smaller farms with fewer resources.

In the Texas and North Dakota studies, operators who did not consider farming to be their primary occupation were excluded from the sample, so the exit rates did not include smaller, part-time farms. "Active, full-time" operators of medium-sized farms had the highest rates of exit in Texas. Operators of small farms had the highest attrition rate in North Dakota, but interviews suggested that this reflected the pared-down operations of already financially stressed farmers in 1986.

Figure 1

Rate of involuntary exit among different sizes of farms

The annual rate of operators leaving farming for financial reasons varied by farm size, whether classified by acreage class or by sales class.



Source: (*15*).

Bankers' Survey Tracked Stress

The financial problems of the farm sector were increasingly passed to farm lenders in the 1980's. During 1985-86, farm loan chargeoffs by commercial banks, the Farm Credit System, and Farmers Home Administration totaled $5.6 billion.

The financial problems of the farm sector were increasingly passed to farm lenders in the 1980's. The effect of debtors' distress on lenders was substantial. Losses of principal and interest payments on delinquent, uncollectible farm loans (net chargeoffs) increased during the 1980's. Overall actual farm sector loan losses indicate that 1985 and 1986 were the most difficult years of the farm crisis, with $5.612 billion being charged off by commercial banks, the Farm Credit System (FCS), and the Farmers Home Administration (FmHA). For example, commercial banks charged off $4.117 billion in farm nonreal estate loans from 1984 through 1989. Of that amount, $2.495 billion, or 60.6 percent, occurred in 1985-86 (*68*). The FCS, a federally chartered cooperative lender for agricultural producers and cooperatives, had loan losses of $3.771 billion during 1982-89, $2.426 billion of which, or 64.3 percent, occurred in 1985-86 (*68*).

FmHA, the lender of last resort to the farm sector, exhibited much forbearance toward farm loan problems until the late 1980's because congressional and legal activities slowed adverse actions toward problem farm loans. About 87.7 percent of FmHA's $7.537 billion in chargeoffs during 1982-89 came during 1987-89. Life insurance companies do not report loan losses but they do report foreclosures. Their farm loan foreclosures totaled $1.357 billion during 1985-86, or 40.8 percent of the 1982-89 foreclosure total of $3.323 billion.

One valuable source of information on farm financial stress and forced exits is a midyear farm credit survey, conducted by the American Bankers Association, of agricultural banks regarding the conditions of both their farm customers and farmers in their local lending areas. Beginning in 1982, the survey has included questions that address the discontinuance of financing, liquidations, bankruptcies, and failures. The survey was distributed to a random stratified probability sample drawn from the 4,500 banks qualifying as agricultural banks. (To qualify as a farm bank, the institution either had to have more than $2.5 million in farm production and farm real estate loans, or it had to have more than 50 percent of its loan portfolio in farm lending.) Banks were stratified by asset size and region.

Bankers' responses to the survey likely focus on commercial-sized farms that are viewed as actual or potential bank customers and not on the smaller farms that just meet the census definition of a farm ($1,000 or more annual sales). Therefore, the stress numbers should not be multiplied by the total census number of farms but instead viewed as relative indicators through time.

The indicators of financial stress in agriculture as reported by farm banks were the highest in 1985-86 (table 3, app. table 1). The volume of farm loans delinquent 30 or more days reached 5.3 percent in 1985, peaked at 6 percent in 1986, and dropped to 1.5 percent in 1989. The banks discontinued financing for 5.6 percent of their farm borrowers during the year ending June 1986, compared with 4.5 percent in 1985. The proportion of farm customers loaned up to their practical limit, another measure of creditworthiness, peaked at 38.8 percent in mid-1986, a record followed closely by 36.7 percent a year earlier.

Agricultural banks estimated that 6.2 percent of farmers in their lending areas went out of business during the year ending in June 1986, up from the 4.8 percent of June 1985. About 68 percent of those farmers were thought to have left in 1986 because of financial problems (liquidation or foreclosure), slightly less than the 70 percent in 1985. Responding bankers estimated that 4.2 percent of local farm operators filed for bankruptcy during July 1985-June 1986, an increase from 3.8 percent in 1985. That period was also reported with the highest bankruptcy rate for their own farm customers (2.2 percent).

The survey reveals some regional diversity in farmers' financial experience (app. table 1). Indicators of farm financial stress generally peaked across the Nation in 1985-86. The South, which generally led in most indicators of financial stress, was hit hard by the economic stress. Drought, financial stress of many cotton farms, and the contraction of the energy sector may have accentuated southern farmers' difficulties. During 1982-85, the Plains showed the second-largest percentages of farmers going out of business and declaring bankruptcy. But the Northeast moved into second place during 1986-89.

There also was considerable diversity in farmers' financial stress by type of farming area (app. table 2). Areas dominated by cotton farms showed above-average rates of financial stress, according to the banks' responses. Beef cow-calf and dairy areas also showed above-average financial stress, but below the levels exhibited by the cotton farms.

Table 3--Indicators of financial stress in agriculture as reported by farm banks, United States, 1982-89[1]
For customers of the responding banks as well as all area farmers, 1985 and 1986 were the peak stress years.

Item	1982	1983	1984	1985	1986	1987	1988	1989
				Percent				
Farm loan volume delinquent 30 days or more (in June)	3.9	3.7	4.5	5.3	6.0	2.7	1.6	1.5*
Banks' farm borrowers who had bank financing discontinued (during the year ending in June)	3.3	2.9	3.4	4.5	5.6	3.2	1.7	1.3
Farm borrowers banks expect to discontinue (during the year ending next June)	4.4	2.0	3.1	5.7	6.7	2.1	1.5	1.7
Banks' farm borrowers loaned up to practical limit (in June)	31.9	28.1	32.8	36.7	38.8	28.8	22.6	24.6
Farmers in bank lending area who went out of business (during the year ending in June)	2.2	2.3	3.6	4.8	6.2	4.6	2.8	2.4
Liquidation categories for area farmers (during the year ending in June):								
Normal attrition	NA	37.7	31.3	27.7	28.9	38.4	50.2	58.5
Voluntary liquidation	NA	42.4	44.0	44.3	41.7	35.8	30.6	27.6
Legal foreclosure	NA	18.1	22.3	25.8	26.3	23.6	17.1	12.7
Other	NA	1.8	2.4	2.2	3.1	2.3	1.6	1.2
Banks' farm borrowers who filed for bankruptcy (during the year ending in June)	NA	NA	NA	1.5	2.2	1.4	.7	.4
Farmers in bank lending area who filed for bankruptcy (during the year ending in June)	.8	1.1	2.6	3.8	4.2	3.3	2.2	1.7

* = Data for 1989 are as of September 30.
NA = Not available.
[1]Data are unweighted averages of responses to the American Bankers Association midyear farm credit survey, which uses a stratified random sample.
Source: *(8)*.

1980's Changes Continue Historical Trends

Farm numbers are following a long-term trend of decline. And despite the financial stress of the 1980's, the 296,400 drop between 1980 and 1990 is lower than in each of the preceding four decades. The percentage decline is less than in each of the preceding three decades.

The bottom line regarding farm exit is the change in the net number of farms (exits balanced against entrants). Total farm numbers declined 296,400 between 1980 and 1990, or 12.1 percent from the 1980 base (table 4). This is the lowest percentage rate of decline since the 1940's when 11.1 percent left the sector. It is the smallest decline in absolute numbers since the 1930's when 195,800 farms left, and it is dwarfed by the 1.7-million decline in farm numbers recorded in the 1950's. Average farm size increased only 8.2 percent during 1980-90, the lowest rate of increase per farm since the 10.8-percent increase in the 1930's. This increase compares with the record 39.4-percent increase of the 1950's.

Since 1910, the highest average annual decline in farm numbers for a decade was the 2.98 percent recorded for 1950-60. This compares with 2.56, 1.73, and 1.21 percent average annual declines, respectively, for 1960-70, 1970-80, and 1980-90. The average annual decline was lower in the 1980's than in the 1970's even though the 1970's generally are regarded as a relatively prosperous time for agriculture. (But, the 1.21-percent average annual rate of decrease for 1980-90 is double the 0.65-percent rate for 1975-80.)

The data in table 4 reflect the farm definition in effect for each year shown. (The history of farm definitional changes are discussed in detail below.) It is important to note that the last three changes in 1950, 1959, and 1974 made the definition of a farm somewhat more restrictive. An estimated 150,000-170,000 of the decrease in farms for the 1950-60 period was the result of the change in the farm definition in 1950 (*38*, *84*). About 232,059 places were not counted as farms in 1959, but they qualified as farms in the previous definition. Agricultural operations excluded by the 1974 definition totaled 152,110 farms.

Adding these respective totals to the 1950, 1960, and 1980 farm numbers would slow the decline in the number of farms. The 1940-50 decline would be 8.5 percent instead of 11.1 percent (based on the 160,000 farms excluded in 1950 because of redefinition). The adjusted 1950-60 decline from the 1950 base would be 25.7 percent instead of 29.8 percent, and the 1970-80 decrease would be 12.1 percent instead of 17.3 percent.

The 1970-80 average annual decline in farm numbers would be 1.21 percent, the same as the 1980-90 average annual figure. Thus, despite the financial stress of the 1980's, the average annual decline in farm numbers in the 1980's is similar to that of the 1970's. However, some of the 152,110 farms excluded by the 1974 definition change, if included in the data series for 1974 and later, would have left the sector during 1974-80. Adding all 152,110 farms to the 1980 farm number total inflates its impact. If those 152,110 farms left the sector at the same rate as all other farms during 1974-80, then 1.25 percent would be the overall average annual decline in farm numbers, just slightly above the 1.21 percent for 1980-90.

Farm numbers fell the most during this century in the 1950-70 period when the decline totaled 2.7 million. In that 20-year span, farm numbers were reduced by roughly half with little fanfare (*61*). This exodus was much less painful than that experienced between the end of World War I and the Great Depression, but no less dramatic (*61*). A generally healthy economy absorbed farm families leaving the sector during the 1950's and 1960's with substantial success.

The reduction in farm numbers during 1950-70 can never be experienced again, even though the declines in the late 1970's and 1980's created more public attention. Stanton argues that farm structural change was still an issue of concern in the 1970's and 1980's, but more in terms of what portion of total farm output would be produced by different economic classes of farms than in the decline in farm numbers (*61*, pp. 4, 27).

Research by Smith, Edwards, and Peterson showed that the rate of decline in farm numbers has been considerably different since the mid-1970's (*60*). The 1935-74 trend (based on census of agriculture data) shows a rapid change to fewer and larger farms. The pattern of farm structural change appears to have shifted in the mid-1970's. While the distribution of farms by size continues to evolve since 1974, the rate of change in farm numbers has slowed. But a decrease in the rate of decline is to be expected. If the 1935-74 average annual linear decline (absolute rate) in farms were carried forward, the last farm would disappear in 1995 (*60*, p. 16). As Gale notes, given limited economies of scale and a stable demand for U.S. agricultural commodities, it is

reasonable to expect that farm numbers should not decline indefinitely toward zero (*27*).

The changes in farm numbers affect the farm population and rural communities. The 1980-90 drop in farm numbers has been reflected in a 1.46-million decline in the farm population during 1980-90 (table 4). The 1980-90 decline in farm population was the lowest since the 1930's and compares with the 7.5-million drop experienced during the 1940's. Some 3.7 million people left farming even during the relatively prosperous agricultural period of 1970-80. Farm population decline is a function of smaller family sizes and lower farm numbers. For example, in 1910 there was an average of 5.01 persons per farm, but this figure had declined to 2.14 by 1990.

The number of persons actually or potentially leaving the farm sector is modest by historical standards. Some 30.5 million persons lived on farms in 1940 just prior to the rapid economic changes induced by World War II and the postwar years (table 4). At that time, the farm population made up nearly one-fourth of the total U.S. population and was just below the 32.5-million peak of 1916 (*36*, p. 18). The farm population declined to 9.7 million by 1970, a 68.2-percent drop for the 1940-70 period (table 4). In half of the years during the 1946-64 period, over 1 million people annually left the farm and moved elsewhere. Such numbers are much larger than the 1980-90 farm population losses, when total decline was 1.46 million persons.

Table 4--Selected farm sector measures, United States, 1910-90[1]

Declines in farm numbers and the farm population have continued unabated since the 1930's. But the number leaving the sector in the 1980's was modest by historical standards.

Year	Number of farms	Average farm size	Farm population	Farm population/ total population	Farm population per farm	Change				
						Time period	Number of farms			Farm population
							Total	Period total	Average annual	
	Thousands	*Acres*	*Thousands*	*Percent*	*Number*	*Period*	*Thousands*	*---Percent---*		*Thousands* *Percent*
1910	6,406.2	137	32,077	34.9	5.01	--	--	--	--	-- --
1920	6,517.5	147	31,974	30.2	4.91	1910-20	111.3	1.7	0.17	-103 -0.3
1930	6,545.6	151	30,529	24.9	4.66	1920-30	28.1	.4	.04	-1,445 -4.5
1940	6,349.8	168	30,547	23.2	4.81	1930-40	-195.8	-3.0	-.30	18 [2]
1950	5,647.8	213	23,048	15.3	4.08	1940-50	-702.0	-11.1	-1.11	-7,499 -24.6
1960	3,962.5	297	15,635	8.7	3.95	1950-60	-1,685.3	-29.8	-2.98	-7,413 -32.2
1970	2,949.1	374	9,712	4.8	3.29	1960-70	-1,013.4	-25.6	-2.56	-5,923 -37.9
1980	2,439.5	426	6,051	2.7	2.49	1970-80	-509.6	-17.3	-1.73	-3,661 -37.7
1990	2,143.0	461	4,591	1.9	2.14	1980-90	-296.4	-12.1	-1.21	-1,460 -24.1

-- = Not applicable.

[1]The data reflect the farm definition in effect for each year shown. See the text for a discussion of the implications.

[2]Less than a 0.1-percent increase.

Sources: *(10, 77-83, 85-86).*

Changes by Sales Class

A shift toward larger farms is one result of the historic decline in farm numbers. While still accounting for the fewest farms, large farms are gaining in number and the proportion of total sales.

The farm sector possesses much internal diversity. It is thus important to move beyond the analysis of changes in total farm numbers for the sector and examine what is happening within the sector. The implications of changes in farm numbers differ greatly, depending on the characteristics (such as sales, acreage, and region) of those exiting. For example, a preponderance of exits by smaller farms has greater implications for the number of people leaving the sector, while a majority of exits by large farms has greater significance in terms of the amount of sales affected and resources transferred.

Table 5 profiles the diversity of farms by sales class. Most U.S. farms are small, noncommercial, and family owned and operated. Farms with under $40,000 in gross sales of farm products per year are generally considered to be noncommercial. Most of these farms individually produce relatively small amounts of farm products and provide insufficient farm income to support a family by today's living standards. Many of these farm operators work full-time in off-farm jobs. The noncommercial size group can be further divided into those with sales under $10,000 per year and those with sales of $10,000 to $39,999 per year. Farms with sales under $10,000 are often characterized as hobby or part-time farms, rural residences, or retirement farms with small agricultural enterprises. Farms with $10,000-$39,999 in sales tend to be slightly larger operations, upon which the household depends for some, but not most, of its income.

Farms with under $40,000 in annual sales constituted 71.1 percent of all farms in 1989 but only 9.5 percent of all farm sales (table 5). At the other end of the spectrum, some 323,000 farms with over $100,000 in annual sales accounted for 77.6 percent of all sales. The 39,000 farms with annual sales of $500,000 or more accounted for 40.5 percent of total sales. Smaller farms tend to be sole proprietorships, full owners, and depend more on off-farm work than do larger farms.

Appendix table 3 shows the distribution of farms by sales for 1970-90 based on data developed by USDA's National Agricultural Statistics Service (NASS).[5] Farms with under $10,000 in annual sales experienced the greatest declines in farm numbers throughout the period. The group with $10,000-$39,999 in annual sales also experienced declines in numbers throughout 1970-90. The number in the midsized sales group ($40,000-$99,999) rose in the 1970's but fell in the 1980's. However, this group held a constant share of total farms during 1975-90. There was an overall shift toward larger farms during 1970-89 in terms of both the number of farms in higher sales categories and the percentage of total sales in these categories. In 1989, some 14.9 percent of farms had sales of over $100,000 and they accounted for 77.6 percent of all farm sales.

The distribution of farms by sales class through time is affected by inflation. For example, the index of prices received (1977=100) by farmers increased 123.3 percent from 60 to 134 between 1970 and 1980 and increased 9.7 percent from 134 to 147 between 1980 and 1989. Ahearn adjusted census of agriculture data for 1974, 1978, and 1982 to a 1982 price base to examine actual changes in each sales class (2). When price effects were eliminated, Ahearn found relatively little change in the number of farms with under $20,000 in sales. There was a slight decrease of farms in sales classes between $20,000 and $100,000 during 1974-82 and a simultaneous gain in classes over $100,000. In other words, the groups with sales above $100,000 increased at the expense of other groups, particularly the $20,000-$100,000 classes. Therefore, except for the smaller farms, farm size measured in terms of sales was increasing by more than the rate of inflation.

[5] NASS develops annual State-level estimates of farm numbers. Although the NASS numbers are linked to the census of agriculture numbers, the NASS numbers do not represent an actual count of farms for noncensus years. The NASS numbers are estimates based on annual USDA enumerative surveys, State-level censuses, and other data sources.

Table 5--Profiles of farms by annual sales class
Most farms are small, noncommercial, and family owned and operated.

Item and year	Sales class: Under $10,000	$10,000-$39,999	$40,000-$99,999	$100,000-$249,999	$250,000-$499,999	$500,000 or over	All farms
				Thousands			
Number and size, 1989:							
Number of farms	1,019	525	303	211	74	39	2,171
				Percentage distribution			
Share of farms	46.9	24.2	14.0	9.7	3.4	1.8	100.00
Share of total cash receipts from farm marketings	2.2	7.3	12.9	21.0	16.1	40.5	100.00
				Acres			
Acres per farm, 1990	99	340	743	1,198	1,955	2,792	461
				Dollars			
Income per farm operation, 1989:[1]							
Gross cash income	4,895	27,125	80,292	181,700	383,480	1,749,791	81,758
Cash receipts from farm marketings	3,471	22,246	67,582	158,463	348,471	1,673,359	73,334
Government payments	297	2,664	8,050	16,663	27,145	32,117	5,016
Farm-related income[2]	1,127	2,217	4,661	6,574	7,864	44,314	3,408
Cash expenses	5,982	21,123	55,605	118,373	251,113	1,177,586	56,582
Net cash farm income	-1,087	6,003	24,688	63,328	132,366	572,205	25,176
Off-farm cash income[3]	31,245	25,338	19,958	17,564	20,804	27,517	26,490
				Percent			
Type of organization, 1987:							
Sole proprietorship	92.2	87.2	83.8	76.2	61.5	40.9	86.7
Partnership	6.2	10.3	11.9	15.6	21.8	24.6	9.6
Corporation, family held	.9	1.7	3.5	7.2	15.0	28.5	2.9
Corporation, other than family held	.1	.2	.3	.5	1.1	4.8	.3
Other	.6	.6	.5	.4	.6	1.2	.6
Tenure of operator, 1987:							
Full owner	77.2	54.9	34.4	27.0	29.9	37.1	59.3
Part owner	15.1	30.8	48.1	58.1	57.8	48.8	29.2
Tenant	7.7	14.3	17.5	14.9	12.3	14.1	11.5
				Percent of farm operators reporting			
Days employed off the farm, 1987:							
None	29.1	43.2	61.9	73.1	76.7	78.8	43.1
1-99	7.8	11.4	15.1	13.3	10.3	7.9	10.2
100-199	10.0	10.8	7.6	4.6	3.8	3.4	9.1
200 or more	53.1	34.5	15.4	9.0	9.2	9.9	37.6

[1]Farm operations may have several households sharing the earnings of the business (such as partners or shareholders in farm corporations). The number of households per farm tends to increase as farm sales increase.
[2]Machine hire and custom work plus sales of forest products.
[3]Off-farm cash income of the principal farm operator and family.
Sources: *(71, 78, 84).*

Changes by Acreage Size Class

Medium-size farms (50-499 acres) dropped by more than 115,000 between 1982 and 1987 and accounted for about 75 percent of the total decline in farm numbers.

The number of acres is another commonly used yardstick of farm size. This measure avoids problems presented by inflation when constructing farm size classes through time based on sales. The acreage standard also allows U.S. farm structure to be thought of as a constantly changing number and mix of farms on a nearly fixed land base. It is instructive to compare the number of farms by acreage class for the 1980's with earlier years (table 6). Census of agriculture data were used to determine farm numbers by acreage class during 1910-87. (NASS farm numbers by acreage size class are not available.[6]) The size distribution by acreage class, like that for sales class, is skewed toward the upper end of the spectrum. For example, about 28.6 percent of all farms had fewer than 50 acres in 1987, while only 8 percent had 1,000 or more acres.

Farm numbers reported by the census continued to decline in the 1980's as they have done largely unabated since the Great Depression. The 1987 Census of Agriculture reported just over 2 million farms, 6.8 percent less than in 1982. The number of midsized and small farms continued to decrease, while the number of large farms having 1,000 acres or more increased 4.3 percent in 1982-87. The large farms produce the bulk of U.S. food and fiber.

Virtually all of the decline in farm numbers occurred in the groups with 10-499 acres. A comparison of the acreage distribution for 1982 and 1987 reveals a substantial decline in the number of farms with 50-499 acres. Farm numbers in this acreage range dropped by more than 115,000 between 1982 and 1987, about 75 percent of the total decline in farm numbers. There also was a sizable drop of 36,800 farms in the 10-49 acreage range, representing about 24 percent of the 1982-87 decline. There was a small decrease in the number of farms with fewer than 10 acres and 500-999 acres. These changes are following long-term trends. Notice the changes in the number of farms by acreage class for the entire 1910-87 period. Total farm numbers declined 67.2 percent. The number of farms having 500 or more acres increased, while the number of those with fewer than 500 acres declined. The largest declines were the 78.5 and 78.4 percent registered by the 10-49 and 50-99 acreage size groups, respectively. The number with 1,000-plus acres increased 236.8 percent,,while the number with under 10 acres declined 45.3 percent. Those with 500-999 acres increased 59.7 percent during 1910-87.

Small farms (under 50 acres) have much higher entry and exit rates than do larger farms. The category of farms with under 10 acres is volatile, subject to changes in economic conditions and changes in the definition of a farm. Persons working off the farm enter or leave farming depending upon the relative economic attractiveness of farming at the moment, thus causing fluctuations in the number of farms in this category (and, to a lesser extent, the 10-49 acre category).[7] For example, farm numbers increased 17.9 percent in the under-10-acres category during 1974-78 as people entered farming during a relatively prosperous period. That category increased another 24.1 percent during the 1978-82 period.[8] It also is interesting to note the relative stability of the under-10-acres category during the last 25 years. For example, total farm numbers declined 33.9 percent during 1964-87, while the numbers in the under-10-acres category increased 3.7 percent.

[6] The complex structure of U.S. agriculture makes it difficult to achieve a complete and accurate count of farms. In censuses prior to 1969, enumerators visited all farm operators within an assigned area. All censuses of agriculture beginning with the 1969 census have been conducted primarily by mail. (The exception was the 1978 census, where a combination mail list/direct enumeration approach was used to overcome an unacceptable number of small and midsized farms not included on the mail list for the 1969 and 1974 censuses.) The Bureau of the Census conducts followup procedures to help ensure the best coverage possible. Statistical adjustments are made to address nonresponse and sampling problems. These adjustments are necessary because not all farms are surveyed for all items, and some farms fail to respond to the numerous attempts at contact. Other errors arise from nonsample sources, such as incorrect or incomplete reporting, processing, and the inability in obtaining a report from each eligible reporting unit. The accuracy of a census count is determined by the joint effects of sampling and nonsampling errors. The number of farms as reported by NASS are somewhat different because of slightly different procedures (*25*). NASS further adjusts for incompleteness and nonresponse problems based on its list of farms and area frame, resulting in different totals than those reported in the census of agriculture.

[7] For example, a study by Edwards, Smith, and Peterson that analyzed the growth, decline, entry, and exit of farms between 1974 and 1978 found much of the entry and exit occurring among smaller farms (*23*).

[8] The 1978 census employed a combination mail list/direct enumeration approach to drastically reduce the number of missed farms. It was the only census during 1969-87 to use this approach. To improve the coverage of the 1978 census, particularly in counting the number of small farms, the mail-out/mail-back enumeration was supplemented by direct enumeration of all households in a sample of areas in all States, except Alaska and Hawaii. Due to budget limitations, the direct enumeration sample was eliminated in subsequent censuses. To provide comparable data, estimates from the area sample were subtracted from the 1978 data in subsequent census reports. Thus, the 1978 data presented in table 7 include data only for farms on the 1978 mail list. Farms not on the mail list in 1978 were as follows: under 10 acres, 63,855; 10-49 acres, 83,687; 50-499 acres, 70,367; 500-999 acres, 1,903; 1,000 or more acres, 1,055; total, 220,867.

The farms with fewer than 50 acres accounted for more than 35 percent of total farms until after 1954, down from 39.6 percent in 1935. The share of these farms dropped to a low of 21.9 percent in 1974 and was 28.6 percent in 1987. Smith, Edwards, and Peterson note that some of the changes in the number of small farms might reflect data problems (*60*). According to that study, the practice of using estimates of potential sales to determine if a place qualifies as a farm almost certainly contributed to fluctuations in the number of farms in the smallest size class from one census to the next. Estimates of potential sales, and thus whether a place qualifies as a farm, are sensitive to changes in farm product prices. That is, even with no change in actual characteristics, price changes may classify a place as a farm in one census but not in the next, or vice versa. The census does not publish data on the acreage of farms classified using potential sales. Small farms historically have not only presented definitional and resulting counting problems, but public policy problems as well (*18*).

Table 6--Distribution of farms by total farmland acreage, 1910-87

The trend toward fewer and larger farms is evident; net losses in the 1980's were not spread equally among farm sizes.

Item and year	Under 10 acres	10-49 acres	50-99 acres	100-499 acres	500-999 acres	1,000 or more	All farms
				Number			
Number of farms:							
1910[1]	335,043	1,918,499	1,438,069	2,494,461	125,295	50,135	6,361,502
1920	291,506 [2]	2,013,516 [3]	1,475,005	2,456,729 [4]	149,826	67,409	6,453,991
1925[1]	378,535	2,038,692	1,421,078	2,326,155	143,852	63,328	6,371,640
1930	361,999	2,002,115	1,375,198	2,315,403 [4]	159,723	80,665	6,295,103
1935[1]	570,831	2,123,595	1,444,007	2,417,803	167,452	88,662	6,812,530
1940	509,347	1,782,061	1,291,328	2,255,396 [4]	163,711	100,574	6,102,417
1945[1]	594,561	1,654,404	1,157,320	2,166,208	173,777	112,899	5,859,169
1950	488,530	1,479,596	1,048,075	2,068,466 [4]	182,297	121,473	5,388,437
1954[1]	484,291	1,212,831	864,063	1,899,053	191,697	130,481	4,782,416
1959	244,328	813,216	657,990	1,658,530	200,012	136,427	3,710,503
1964	182,581	637,434	542,430	1,439,683	210,437	145,292	3,157,857
1969	162,111	473,465	459,942	1,268,127	215,659	150,946	2,730,250
1974	128,254	379,543	384,762	1,059,220	207,297	154,937	2,314,013
1978	151,233	391,554	355,755	984,923	213,209	161,101	2,257,775
1982	187,665	449,252	343,775	894,387	203,925	161,972	2,240,976
1987	183,257	412,437	310,867	812,276	200,058	168,864	2,087,759
				Percent			
Distribution of farms:							
1910	5.3	30.2	22.6	39.2	2.0	0.8	100.0
1920	4.5	31.2	22.8	38.1	2.3	1.0	100.0
1925	5.9	32.0	22.3	36.5	2.3	1.0	100.0
1930	5.8	31.8	21.8	36.8	2.5	1.3	100.0
1935	8.4	31.2	21.2	35.5	2.5	1.3	100.0
1940	8.3	29.2	21.2	37.0	2.7	1.6	100.0
1945	10.1	28.2	19.8	37.0	3.0	1.9	100.0
1950	9.1	27.5	19.4	38.4	3.4	2.3	100.0
1954	10.1	25.4	18.1	39.7	4.0	2.7	100.0
1959	6.6	21.9	17.7	44.7	5.4	3.7	100.0
1964	5.8	20.2	17.2	45.6	6.7	4.6	100.0
1969	5.9	17.3	16.9	46.4	7.9	5.5	100.0
1974	5.5	16.4	16.6	45.8	9.0	6.7	100.0
1978	6.7	17.3	15.8	43.6	9.4	7.1	100.0
1982	8.4	20.0	15.3	39.9	9.1	7.2	100.0
1987	8.8	19.8	14.9	38.9	9.6	8.0	100.0
Change in farm numbers:							
1910-20	-13.0	5.0	2.6	-1.5	19.2	34.5	1.5
1920-25	29.9	1.3	-3.7	-5.3	-4.0	-6.1	-1.3
1925-30	-4.4	-1.8	-3.2	-.5	11.0	27.4	-1.2
1930-35	57.7	6.1	5.0	4.4	4.8	9.9	8.2
1935-40	-10.8	-16.1	-10.6	-6.7	-2.2	13.4	-10.4
1940-45	16.7	-7.2	-10.4	-4.0	6.1	12.3	-4.0
1945-50	-17.8	-10.6	-9.4	-4.5	4.9	7.6	-8.0
1950-54	-.9	-18.0	-17.6	-8.2	5.2	7.4	-11.2
1954-59	-49.5	-32.9	-23.8	-12.7	4.3	4.6	-22.4
1959-64	-25.3	-21.6	-17.6	-13.2	5.2	6.5	-14.9
1964-69	-11.2	-25.7	-15.2	-11.9	2.5	3.4	-13.5
1969-74	-20.9	-19.8	-16.3	-16.5	-3.9	2.6	-15.2
1974-78	17.9	3.2	-7.5	-7.0	2.9	4.0	-2.4
1978-82	24.1	14.7	-3.4	-9.2	-4.4	.5	-.7
1982-87	-2.3	-8.2	-9.6	-9.2	-1.9	4.3	-6.8

[1]Data for Alaska and Hawaii not included. [2]Data for Alaska not available. [3]Includes 62 farms for Alaska in the under-50-acres size group. [4]Includes farms of 100 acres or more for Hawaii. Source: *(84)*.

Size Class Structural Implications

There was no large swing toward larger farms in the 1980's. Beginning in the mid-1970's, declines in absolute farm numbers have slowed and the overall trend is not a simple linear move toward fewer, larger farms.

Declines in farm numbers in previous decades were typified by tenants leaving farming, older operators retiring, and fewer younger persons entering farming as a primary occupation (*36*, p. 18). Much of the decrease in the 1950's and 1960's was by small-scale farmers, especially tenants, whose operations were viewed as marginal to modern farming (*13*). People leaving in the 1980's often were under age 40 and from the middle and upper-middle size categories of commercial agriculture. Many of the farmers who failed in the 1980's were well educated, technically efficient, and younger, with farms that were presumed to be adequate in size (*13*). The differences between earlier farm exit conditions and those in the 1980's resulted from changes in the characteristics and economic status of those displaced. The primary factors causing the reduction in farm numbers in the 1950's and 1960's appear to be mechanization and other laborsaving advances, lower profit margins requiring farmers to increase output to maintain net income, and the pull of better job opportunities in urban areas (*36*, p. 18). Those departing were often the small marginal producers or tenant farmers unable to expand their farms. Yet, a larger proportion of the farmers exiting in the 1980's typically operated larger, efficient farms.

A portion of those exiting in the 1980's were considered progressive leaders in the farm community in the 1970's (*13*, *36*, *59*). With the departure of this group in the 1980's, compared with those farmers exiting the sector in the more recent past, it appears that the exits in the 1980's were more significant than those in earlier decades because the farmers leaving controlled more assets (and debt) per unit. Although total farm exits in the 1980's were much lower than in 1940-60, for example, the exits often were more visible even though their total impact cannot compare demographically with those of the earlier time periods.

Changes in the number of farms by size class is a complex phenomenon. The statement that there is a constant movement toward fewer and larger farms is somewhat simplistic (*20*). Changes in farm size by class are not the result of a single linear relationship through time. Smith, Edwards, Harrington, and others have shown the dynamic complexity of changes through time (*20*, *23*, *57*).

Longitudinal data from the census of agriculture showed how many farms in each acreage size class in 1974 moved into various size classes by 1978 (*57*). The data revealed considerable stability among these farms, both at the farm and aggregate levels. Most farms still operating 4 years later remained in the same size class. Most of the farms changing size classes moved only into an adjacent class. Only a small portion of the continuing farms experienced dramatic changes in acreage during 1974-78. Changes in farm size displayed a great amount of symmetry. Every farm moving up from a smaller to larger class was likely to be matched by another farm moving in the other direction. In short, the farm sector experienced more of a "churning" regarding farm size than a simple linear movement to a new size equilibrium. The symmetry and stability for 1974-78 suggest a substantially different view of structural change in agriculture than the 1935-74 trend toward fewer and larger farms would suggest (*57*). And despite the financial stress of the 1980's, changes in farm structure since 1978 have been more like the 1974-78 span than the 1935-74 period, but at a much slower rate of change.

It is important to note the importance of tenant farms on farm numbers, particularly small farms. Tenancy was an important issue prior to World War II. The number of tenant farmers peaked at more than 2.8 million in 1935, according to the census of agriculture. Sharecroppers, an important segment of this number, typically operated with small acreage and were found in large numbers in the Southeast. The decline in tenant farms began during the late 1930's, dropping by 1.4 million during 1935-50. The decline continued until only 240,000 were reported by the 1987 census. Tenants operated about a third of all farmland in 1935, 16.4 percent in 1954, and 13.2 percent in 1987. The decline in tenants and sharecroppers was partially aided by Federal programs in the 1930's and 1940's. In addition, the availability of off-farm employment and the growth of mechanized agriculture enabled part-owners to acquire the resources and efficiency to more sucessfully compete against the full-time tenants for additional rented land (*55*). Tenants often were unable to compete with full- and part-time owners for the additional resources and rented land, so tenant numbers declined.

Blacks operated an important segment of the smaller tenant farms. At their peak in 1920, black farm operators, including tenants, numbered 925,708 and constituted about 14 percent of all farmers (*14*).

Those numbers had declined to 184,004 by 1964 and to 22,954 by 1987 (*84*). The number of black sharecroppers, who typically operated smaller farms, declined rapidly during 1930-60. For example, the number of nonwhite sharecroppers in the South declined from a peak of 392,897 in 1930 to 198,057 in 1950 and to 73,387 in 1959 (*14*, *84*). There were 2,306 tenant farms operated by blacks in 1987 (*84*). This change in black farm structure significantly affected farm numbers by lowering the number of smaller farms, particularly tenant and sharecropper farms.

The changing structure of the farm sector is not unique to the 1980's, for it has been an ongoing evolution. But the trends have shifted:

From the 1935-74 period, a clear trend toward fewer, larger farms typified by--

- Tenant farmers leaving agriculture
- Older operators retiring
- Fewer young people entering farming as their primary occupation
- More frequent exit of small-scale farmers, especially tenants
- Declining marginal operations
- Responses in farm size due to mechanization and other laborsaving advances

To a somewhat more symmetrical decline in the 1980's, including more movement within the sector than movement to outside the sector--

- Operators under age 40 leaving in proportionally larger numbers
- Declines in the middle to upper-middle size categories of commercial agriculture (larger, more efficient farms) were relatively more evident
- Failures from well-educated, technically efficient, young operators of adequate size farms occurred in relatively larger numbers
- Operators of some failed farms were considered progressive leaders in the farm community
- The influence of shortrun economic variables had a stronger effect than during the 1960's and early 1970's when the structural change trend in the farm sector was the dominant influence

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Changes by Region

The largest decline in farm numbers during 1980-90 was the 19.9 percent in the Delta States. This was trailed by the 16.3 percent of the Appalachian region. The Northern Plains and Corn Belt lost 10.8 and 15.3 percent, respectively, of their farms.

Regional trends in farm numbers may be derived from data developed by NASS. Since 1950, NASS has prepared annual estimates of farm numbers by State. Farm numbers in the 10 farm production regions for each decade beginning in 1950 are shown in table 7. The only farm production region to gain farms in 1980-90 was the Pacific (3.1 percent). The Mountain region had the smallest decrease (-1.9 percent). The largest decline was the 19.9 percent experienced by the Delta States. This was trailed by the 16.3 percent in the Appalachian region. The Northern Plains and Corn Belt lost 10.8 and 15.3 percent, respectively, of their farms during the 1980-90 span. But, six regions lost farms at a more rapid rate than the Northern Plains during the 1980's. Much of the attention on the effects of the farm crisis of the 1980's was focused on the Midwest and Plains (*13*). But the South also suffered significant financial stress in the 1980's, aggravated by an intense drought in 1986. And given economic conditions in recent years, it generally has become difficult to sustain the number of farmers in the South. The best prospects for survival of many of the small- and medium-sized farms in the South is through off-farm work, which leads to considerable part-time farming. A strong nonfarm economy is essential to these farmers, because many of their farms are too small to provide an adequate income from farming alone. A combination of factors thus led to a more rapid loss in farm numbers in the South than in the Plains and Corn Belt.

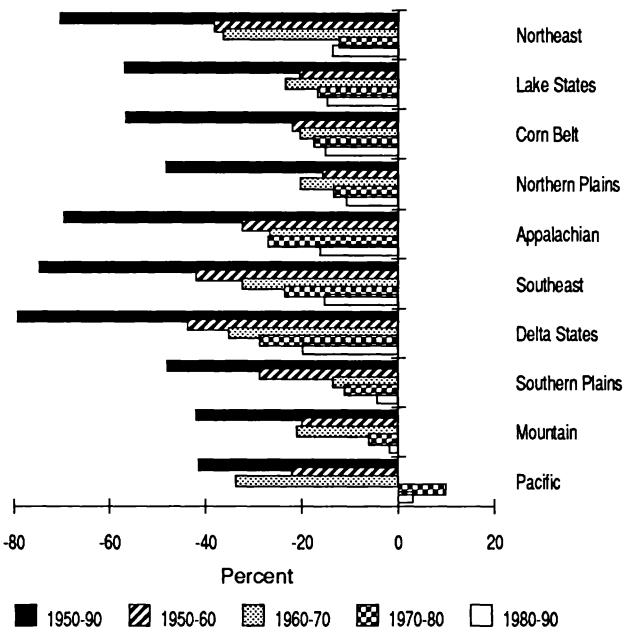
Four regions--Appalachian, Delta, Northeast, and Southeast--had decreases in farm numbers exceeding 69 percent for the entire 1950-90 period (fig. 2). The largest decline was the 79.2 percent experienced by the Delta States. Another four regions lost farm numbers by less than 50 percent during 1950-90 (table 7). These four regions--Mountain, Pacific, Northern Plains, and Southern Plains--are entirely comprised of States located in the Western United States (fig. 2). During this period, the lowest decline in farm numbers was the 41.6 percent experienced by the Pacific States.

Four of the 10 regions--Appalachian, Southeast, Delta, and Northeast--lost some of their shares of all U.S. farms during 1950-90. In 1990, the Corn Belt had the largest share of all farms (21.9 percent) and the Mountain region had the smallest share (5.6 percent). Between 1980 and 1990, the rank ordering for all 10 regions by the number of farms remained constant, with the exception of the Pacific, which moved up from eighth to sixth place.

Figure 2

Percentage change in farm numbers, selected years, 1950-90

Historical declines continue, but the percentage losses often have been in areas other than the major farm-production States in the Midwest.



Sources: *(77-83).*

Farm production regions

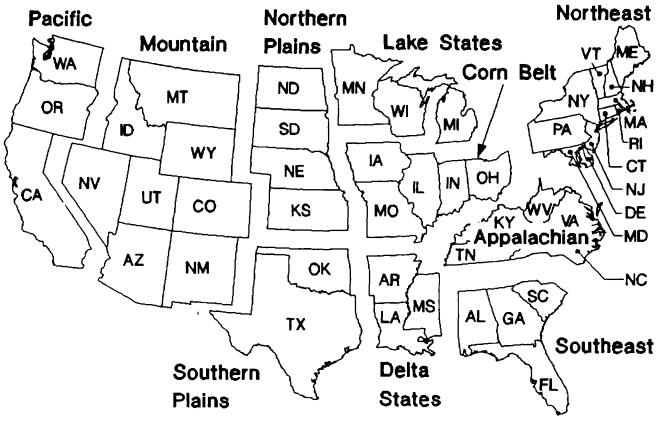


Table 7--Farm numbers by farm production region, selected years, 1950-90
Decreases in farm numbers in the eastern-most regions were 70 percent or more for the entire period.

Farm production region	Number of farms				
	1950	1960	1970	1980	1990
	Thousands				
United States	5,648	3,963	2,949	2,440	2,143
Northeast	495	306	194	170	147
Lake States	519	412	315	262	223
Corn Belt	1,033	805	641	528	447
Northern Plains	377	317	253	219	195
Appalachian	1,027	694	509	371	311
Southeast	638	370	250	191	162
Delta States	582	327	212	151	121
Southern Plains	492	350	302	268	256
Mountain	205	164	129	121	119
Pacific	280	218	144	159	164
	1950-60	1960-70	1970-80	1980-90	1950-90
	Percentage change				
United States	-29.8	-25.6	-17.3	-12.1	-62.1
Northeast	-38.3	-36.4	-12.5	-13.8	-70.4
Lake States	-20.6	-23.5	-16.8	-14.9	-57.0
Corn Belt	-22.1	-20.4	-17.6	-15.3	-56.7
Northern Plains	-15.8	-20.4	-13.5	-10.8	-48.3
Appalachian	-32.4	-26.7	-27.1	-16.3	-69.7
Southeast	-42.0	-32.4	-23.6	-15.4	-74.7
Delta States	-43.8	-35.2	-28.8	-19.9	-79.2
Southern Plains	-28.9	-13.7	-11.3	-4.5	-48.0
Mountain	-20.4	-21.1	-6.2	-1.9	-42.1
Pacific	-22.2	-33.8	10.0	3.1	-41.6

Note: Northeast = CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT. Lake States = MI, MN, WI. Corn Belt = IL, IN, IA, MO, OH. Northern Plains = KS, ND, NE, SD. Appalachian = KY, NC, TN, VA, WV. Southeast = AL, FL, GA, SC. Delta States = AR, LA, MS. Southern Plains = OK, TX. Mountain = AZ, CO, ID, MT, NV, NM, UT, WY. Pacific = AK, CA, HI, OR, WA. Sources: *(77-83)*.

Effects of Definitional Changes

Counting farms over time is made difficult by the criteria used to identify farms. Good definitions must be measurable and comparable from one period to the next. For example, changing definitions over time have primarily affected the number of small farms.

It is important to consider how the longer run trends in farm numbers may have been influenced by definitional changes. The impacts of the 1950, 1959, and 1974 definitional changes have been discussed above. Changes in the structure of agriculture have prompted periodic changes in the farm definition. Since 1974, a farm has been defined for statistical purposes as any place from which $1,000 or more of agricultural products were sold or normally would have been sold during the census year. This is the ninth definition used since the number of agricultural operations was first counted in 1850 (table 8).

There has thus been an evolving effort for over 140 years to determine what constitutes a farm for statistical purposes. The definition of a farm has been the subject of considerable study in recent decades (*17*, *25*, *38*, *52*, *63*, *66*). Throughout the years, the key features of the farm definition have been that: (1) the land should be under the control of one person and (2) the land should be used for or connected with agricultural operations. In short, since 1850, acreage and dollar values of sales limits have been added, changed, or removed. But the requirements that the land be involved in, or connected with, agricultural "operations," and that it be under the day-to-day control of a single management (individual, partnership, or corporation) have been retained.

Any farm definition is somewhat arbitrary and based on compromises among competing ends. According to Brewster, the definition has been changed through time for two reasons: (1) to exclude operations too small to be reasonably considered farms, and (2) to ensure the inclusion of places, such as greenhouses and apiaries, not commonly regarded as farms despite their significant agricultural production (*17*, p. 28). The definition throughout history usually has included both acreage and sales/production criteria. Acreage of land as a measure of a farm has some weaknesses. The land in the farm is only one production input, but the size of a farm business is a function of many inputs. Because of its wide range in productivity and value, land often is not a good common denominator for measuring the size of a farm.

Basing the farm definition on the value of gross sales also has some problems. For example, Lambert, Kelley, and Flinchbaugh indicate that the generally accepted practice of using a single characteristic, annual gross sales, to define and explain the emerging agricultural structure has serious limitations (*42*). Hanson, Stanton, and Ahearn show that classifying a farm's size based on the value of production may give a more accurate picture of farm output and size than does a gross sales measure that does not account for changes in inventory (*32*). Value of production measures incorporate inventory adjustments. If inventory is held back to a later year, for example, an otherwise large-size farm could be classified into a much smaller sales category.

A measure of a farm defined according to sales (or production) for a single year can be affected by abnormalities in yields and prices plus changes in the kind and form in which farm products are sold. Using sales as a measure also has been criticized because of a lack of accuracy of reported sales, because sales figures do not account for the value of farm products consumed by the farm family, and because of differences in sales of farms of varying types (gross sales are affected by differences in purchased inputs and total "throughput" of farms in question) (*39*, pp. 1568-69). There also are problems of comparing sales classes through time because of the impact of inflation.

Changes in the farm definition through time have affected primarily the number of smaller farms (and the number of farms reporting farm equipment and farm facilities). Effects have been small on the amount reported of land in farms, cropland harvested, livestock numbers, cropland acreage, and crop production. Most of the places excluded when the definition changed have been country residences and part-time farms with low levels of acreage, livestock inventories, and production.

The farm sector as defined by the statistical concept of a farm includes tremendous diversity. One of the most basic internal divisions that has given analysts difficulty in recent decades is that between commercial and noncommercial units. Some

analysts favor a much higher minimum sales requirement in the farm definition to derive a sector focused on commercial agriculture. Others argue against excluding too many of the smaller units. They argue that the dividing line between commercial and noncommercial farms is much more difficult to establish in any meaningful way than is the dividing line between farms and other tracts of land. They state that modern agriculture is developing toward a blending of farm and nonfarm activities and toward the increasing importance of nonfarm activities as a source of income for farm families at all levels of farming activity. The amount earned by large farms is more from investments than from labor income, but the trend is still toward larger nonfarm involvement.

It is interesting to note that the current definition of a farm has come nearly full circle after 140 years (*17*, pp. 29-30). The 1974 definition (the latest) is the first since 1900 to disregard acreage and thus omit separate requirements for large and small operations. It also is the first definition since the original 1850 definition to apply an identical test pertaining to only a minimum production level, regardless of a farm's physical size, before identifying a farm in the census count. The $1,000 sales requirement since 1974 also resembles the 1870-90 $500-sales cutoff for farms of that era. The $500 figure also was much more rigorous than is the $1,000 requirement of today, as less than half of all farms during the last third of the 19th century produced $500 worth of goods, let alone sold that much (*17*, pp. 29-30). (It also is noteworthy that the $500 requirement in 1890 would translate to approximately $4,400 today, based on increases in the wholesale/producer price indexes through time.) By 1900, officials were troubled about the number of unreported full-time units because of the $500 sales requirement, so the definition was changed.

Changes in farm definitions have been a factor at times affecting farm numbers, especially small farms. But it would be easy to overstate the impact of definitional change. For example, Grove noted that planners for the 1959 census changed the definition of a farm to eliminate an estimated 500,000 smaller farms (*30*, p. 284). But by the time the census was taken, many of these small farms had consolidated with other units or had disappeared, leaving only 232,000 farms that qualified under the old, but not the new, definition (*30*, p. 284).

It also is important to note that not only definitional changes alter farm numbers. Enumeration techniques also play a role. The agencies responsible for developing the numbers do their best with the resources available, but problems do occur. Some censuses of agriculture have missed a percentage of farms, resulting in some undercounting of actual numbers (*25*, p. 21). Modifications in enumeration techniques also can affect results. The change from actual enumeration by an enumerator to a mail questionnaire beginning in 1969 has been noted above. Another example is the use of a list of specified screening criteria for farms, which in 1964 resulted in a number of farms being included in the final census count that would have otherwise been omitted (*25*, pp. 18-20).

A number of observers believe that the present concept of a farm is outmoded and a new basic unit of observation is needed (*52*, *63*). Stanton and Bills have proposed a number of alternatives to the value of sales of agricultural products as a major determinant in defining and classifying farms (*63*). They note that problems in understanding the changing structure of U.S. agriculture in the past 30 years result from: (1) changing prices of agricultural products (prices almost doubled between 1969 and 1978); (2) increased output per cropland acre and livestock unit due to adoption of new technology (the combination of increased prices and technical efficiency meant that one agricultural worker in 1978 produced more than double the sales of a similar worker in 1969); and (3) both opportunities for and use of off-farm jobs have increased (the part-time farming sector has increased, adding to the complexity of interpreting statistics) (*63*).

The value of sales has been an important criterion over time for defining farms and classifying farms by size. Stanton and Bills point out a number of problems with using the value of sales as a criterion. First, sales may be a poor indicator of the value of production. Only part of 1 year's crop or 2 years' crops may be sold in a given year. And, important changes in livestock or crop inventories are not reflected in the value of sales. Second, the effects of changing price levels are not easily accounted for when comparing years. Third, sales do not include Government payments, which reflect returns or rent for the use of idled resources. Fourth, bad years or losses of crops and livestock are not recognized, even though expenses for inputs are large.

Stanton and Bills explore a number of alternative measures for determining the size of the farm business. These include various value and physical measures, income source and major occupation of the operator, and the European size unit (ESU) based on the standard gross margin (SGM) used by the European Economic Community (*63*). In their view, the classification of farms on the basis of the "value

of products sold" should be converted to a "value of production" base. Stanton and Bills propose that a farm should be defined as "An operation under the control of one individual or group where agricultural products are sold (no minimum amount) from production on that site and where two weeks or more of operator, family, or hired labor is employed in that production" (*63*).

Reinsel notes that the options for classifying farms are few, and that consideration has been given over the years to most of the possibilities (*52*). Examples include: (1) the level and kinds or quality of resources used, (2) type and quantity of products produced, (3) attributes of the people involved, and (4) combinations of the above. In order to allow data for groups of production units with similar characteristics to be combined, farms were first classified by a few items such as acreage and tenure. While the farm sector continued to change, further improvements were added to address shortcomings, such as the value of sales classes beginning in the late 1940's (*52*). Although this measure has its limitations, it remains the basic economic size classification.

Reinsel notes that whatever measure is used, it should be clearly defined, easily understood, and applicable across the country and over time (*52*). Criteria thus need to allow for great differences in farm size, how factors are combined, and what is produced. Criteria must allow for change while also providing some constancy or comparability in measurement from one period to the next, and be measurable. With such requirements, it is not surprising that no single criterion or classification has been identified that will serve all uses or users.

Various measures of inputs (land, labor, and capital) are available, but each has its problems. For example, acreage comparisons can be meaningful for farms of a given type in a generally homogeneous geographical area. Land quality, however, can differ greatly. Labor use classes could be valuable, particularly for farms with labor-intensive enterprises. The value of an hour of labor used can vary, however, because of a person's age, health, or training. Capital has not been used in classifying farms, but such proposals have been made. Management, which may be the most important input, has not been effectively quantified. Nonetheless, single-input measures typically fail to account for changes in the relative importance of inputs.

Photo courtesy of Lewrene Glaser

Table 8--Census Bureau summary of farm definitions used in censuses of agriculture, 1850-1987
What constitutes a farm today is the ninth definition since the census's inception in 1850. All definitions have been based on acreage, production, sales criteria, labor input, or a combination.

Census year	Acreage limitations	Other criteria
1850 1860	None	$100 worth of agricultural products produced for home use or sale
1870 1880 1890	3 or more acres Fewer than 3 acres	Any agricultural operations $500 worth of agricultural products sold
1900	None	Agricultural operations requiring continuous services of a least one person
1910 1920	3 or more acres Fewer than 3 acres	Any agricultural operations $250 worth of agricultural products produced for home use or sale, or constant services of at least one person
1925 1930 1935 1940	3 or more acres Fewer than 3 acres	Any agricultural operations $250 worth of agricultural products produced for home use or sale
1945	3 or more acres Fewer than 3 acres	Agricultural operations consisting of 3 or more acres of cropland or pastureland, or $150 worth of agricultural products produced for home use or sale $250 worth of agricultural products for home use or sale
1950 1954	3 or more acres Fewer than 3 acres	$150 worth of agricultural products produced for home use or sale $150 worth of agricultural products produced for sale
1959 1964 1969	10 or more acres Fewer than 10 acres	$50 worth of agricultural products produced for sale $250 worth of agricultural products produced for sale
1974 1982 1987	None	$1,000 or more worth of agricultural products produced for sale

Sources: *(17, 66, 84).*

Long-term Trends in Farm Numbers

The secular decline in farm numbers that has characterized the past several decades is explained largely by structural forces that moved people out of farming and increased average farm size. Shortrun economic conditions, often affected by Government policies, also have played a role.

A variety of factors besides financial stress influence changes in farm numbers. The secular decline in farm numbers that has characterized the past several decades is explained largely by structural forces that moved people out of farming and increased average farm size. While these structural forces have often been seen as the primary influence on farm numbers, there is evidence that year-to-year changes in the prosperity of the farm sector may also influence the number of farms.

Decreases in the number of farms have been linked with the movement of people out of farming into nonfarm occupations in response to higher prospective nonfarm earnings. A recent study by Barkley examined this issue and found that greater nonfarm wages relative to farm earnings led to increased migration of labor out of agriculture during 1940-85 (*11*).

This migration occurred in conjunction with a rapid increase in average farm size brought about by the greater productivity of labor and other farm inputs associated with mechanization and other changes in farming practices and technologies. These technologies, introduced during the 1950's, 1960's, and 1970's, generally increased the size of farm that could be efficiently operated by a single farmer, reduced labor requirements, and increased the productivity of land and animal inputs. The resulting greater productivity spurred growth in food production capacity in the face of relatively static demand for food. Such "excess capacity" arising under these conditions is linked to the decline in farm numbers, as productive resources tend to move out of farming in response to depressed output prices.

Ball's finding that productivity growth during 1948-68 was more rapid than during subsequent years is consistent with the more rapid decrease in farm numbers in 1948-68 than in recent years (*9*). Expanding export markets during the 1970's may also account for that decade's slowdown in farm loss if exports provided an outlet for increased production, thus removing some of the pressure for resources to move out of agriculture. While the increase in efficient farm size is often attributed to improvements in technology, changes in the relative prices of farm inputs also may have played an important role. For example, Kislev and Peterson showed that virtually all of the increase in farm size in 1930-70 can be explained by increases in the cost of farm labor relative to the cost of machinery (*40*).

The combination of attractive nonfarm opportunities, new farming technologies, and reduced labor requirements with reductions in machinery prices relative to farm labor costs brought about the dramatic decrease in farm numbers experienced during the 1950's and 1960's. This trend seems to have weakened, given the much slower decline in farm numbers and slower increases in average farm size in recent years. However, the demographic makeup of the farm sector will ensure that these structural effects will continue, as older farmers retire without passing the farm operation to their children (the children having departed for nonfarm careers).[9] The land of such farmers will likely be consolidated into neighboring farms or converted to nonfarm uses, thus reducing the number of farms.

Much concern has been raised by studies that used Markov chain analysis and projected dramatic declines in farm numbers in the future. However, the findings vary among the studies due to differing techniques and data. Projections from such studies of farm numbers for the year 2000 range from 1.25 million to 2.3 million. The projections of earlier studies appear to be too low, because the estimates were basically extrapolations of trends that have moderated during the last decade (*47*, *67*). Conversely, the projections from a study based on data from the mid-1970's (when farm numbers were relatively stable) appear to be too high (*23*).

Estimates of the future longrun trend in farm numbers vary. As noted earlier, the number of farms in 1990 is estimated to be 2.14 million. Farm numbers have been declining at an average annual rate of about 1 percent (about 20,000 per year) over the past 15 years. If the census definition remains constant, farm numbers will likely continue declining at a rate of 1 percent per year over the next 10 years, resulting in a total of 1.97 million farms in the year 2000. Farm numbers would have to decline by 5.4 percent

[9] Demographics have important influences on the rate of structural change. Smith found that the average age of farmers in a region was positively associated with the rate of exit from farming between 1974 and 1978 (*57*). Another study by Smith shows that reduced entry by young farmers contributed to the decrease in farm numbers between 1978 and 1982 (*58*).

annually to reach the 1.25 million projected by Congress' Office of Technology Assessment, and by 3.6 percent annually to reach the 1.5 million projected by Lin, Coffman, and Penn (*47, 67*). It is unlikely that these low projections of farm numbers will be realized. The last time farm numbers declined by more than 2 percent in a single year was in the 1960's.

While the longrun structural trend has been the dominant influence in determining the number of farms over the past several decades, changes in shortrun economic conditions also have played an important role. Figure 3 shows that the annual rate of change in farm numbers during 1960-90 has fluctuated considerably with economic conditions. During the 1960's, the rate of change moved upward toward zero as the decline in farm numbers gradually slowed, but there was considerable fluctuation in the late 1970's and 1980's. The decline in the number of farms halted for a brief period around 1980, when the farm sector enjoyed favorable prices, increasing asset values, and low real interest rates. But the rate of change fell dramatically as declines accelerated when the farm crisis of the early 1980's began. The rate slowed and moved upward again as the farm sector began to recover later in the 1980's. The annual percentage change in farm numbers has been quite variable from year to year since the mid-1970's.

Year-to-year changes in economic conditions influence the change in the number of farms by influencing the incentives to enter and exit farming and by affecting the financial status of farmers. When output prices and net returns are high and asset values are rising, more people enter farming and fewer leave farming. New entry comes about largely through young men and women deciding to enter farming as an occupation and through the acquisition of part-time farms by individuals who depend on a nonfarm job for most of their income. Conversely, when prices, returns, and asset values are falling, fewer individuals enter farming. In addition to those voluntarily quitting farming, some farmers are forced out through foreclosure, bankruptcy, or forced liquidation when they are unable to meet their financial obligations due to low or negative cash-flow, reduced asset values, and high interest rates.

Recent research supports the notion that farm numbers respond to changes in the economic environment. Two studies by Gale analyzed U.S. and State-level time-series data on the number of farms from 1960 to 1988 (*26, 27*). The findings show that, while the structural trend accounts for much of the change in farm numbers, prices of farm output and inputs, exports, land values, interest rates, and income also help explain changes in farm numbers. The ratio of output prices to input prices, exports, and the average value of land appeared to exert the greatest influence, with higher values of these variables being associated with slower decline in farm numbers. It also appears that the influence of shortrun economic variables has been stronger during the last 15 years than it was during the 1960's when the structural trend was the dominant influence.

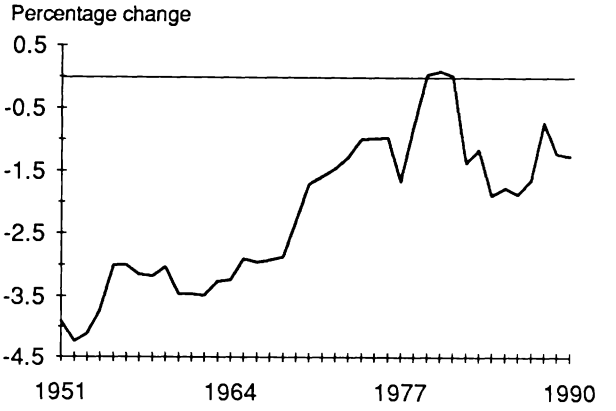
Forced exit of farmers through bankruptcy or forced liquidation is the component of the decline in farm numbers that attracts the keenest interest. The effects of economic conditions and government policies on forced exits before the 1980's have also received some attention. Shepard and Collins, who examined U.S. farm bankruptcy rates over 1910-78, found significant effects for net farm income and average farm size during post-World War II years and for average farm size, degree of financial leverage, and government support payments during pre-war years (*56*).

According to Rucker and Alston's study of farm failure rates (based on annual State data over 1925-39), government relief programs, including commodity support programs, credit programs, and moratorium legislation, were effective in reducing farm failures (*54*). A study of aggregate farm failures in 1912-80 by Alston, LaFrance, and Rucker found that government payments reduced some failures, but Federal credit programs were not effective (*7*). In a study of the effects of the farm relief legislation of the 1930's, Rucker concluded that, while moratoria on farm foreclosures provide relief for some farmers, credit supplies may fall substantially as lenders become more cautious in lending to farmers (*53*).

Figure 3

Annual percentage change in U.S. farm numbers, 1950-90

While farm numbers have declined most years, the rate of change often fluctuates with economic conditions that influence the entry and exit of farmers. It is the involuntary exit portion, though, that is the most elusive.



Note: Farm numbers are reported by USDA's NASS with no adjustments except that 1974 is the average between 1973 and 1975. The definition of a farm was revised in 1974.

Sources: *(78-83).*

Federal Initiatives in Perspective

Infusions of Federal money to rural and farm relief efforts provided financial stability to the farm sector and moderated many losses.

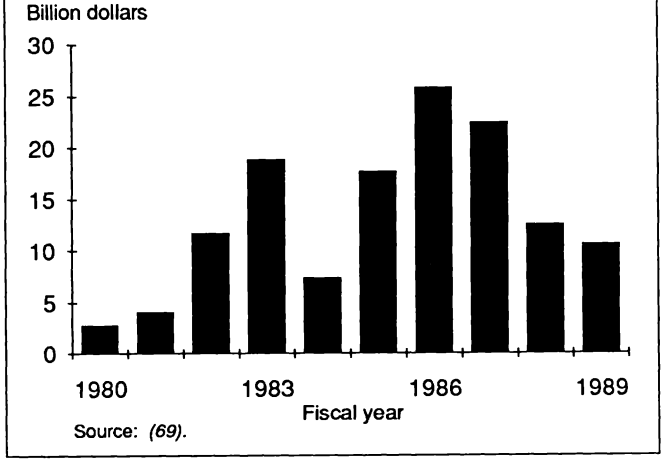
Most analyses of the farm financial crisis ignore the Government's role in helping farmers continue farming. The Government responded to the farm financial difficulties of the 1980's with a range of policies undertaken, most between 1984 and 1987, to provide farmers with income support, credit assistance, and new legal rights as borrowers. An underlying objective of the policies was to provide financial stability to the faltering farm sector. Financial stability would, in turn, stem the rising incidence of farm failures as well as assist creditors and rural businesses serving agriculture. Federal and State assistance to the farm sector during the 1980's was the largest since the 1930's.

Federal policies undertaken in the 1980's were targeted both specifically toward financially stressed farm borrowers as well as broadly toward the sector through commodity programs. The commodity programs provided the most far-reaching assistance, since they provided price and income support to both financially healthy and unhealthy farmers enrolled in such programs. Credit programs also provided significant support. USDA's Economic Research Service (ERS) calculated that Federal credit subsidies to agriculture in 1986, 1987, and 1988 amounted to $2.23, $2.48, and $2.48 billion, respectively (information regarding earlier years is not available). Federal and State credit assistance program initiatives and changes in agricultural lending laws had a smaller target than commodity programs, usually benefiting only farmers experiencing financial difficulties or facing foreclosure. Credit programs operated indirectly by expanding credit availability to higher risk borrowers. Credit law changes commonly forestalled farm foreclosure or assisted farmers in restructuring debt, sometimes by requiring lenders to forgive debt. New credit laws also helped farmers retain farm assets, particularly farm residences (homesteads), after foreclosure.

The Federal Government also implemented an array of policies during the 1980's to assist financially troubled farm lenders. These policies assisted all farm borrowers by providing stability to financial institutions which, in turn, influenced the cost and availability of credit as well as lenders' ability to accommodate farm customers with repayment problems. The policies involved a range of activities from interest rate writedowns to special assistance and forbearance policies to help agricultural lenders remain viable and operating. The latter proved beneficial to the farm sector, as illustrated by the trauma some farm borrowers experienced in finding new sources of credit following a failure of their lender.

The total dollar commitment by the Federal Government for all agricultural program assistance during the 1980's reached over $150 billion. Commodity programs provided the majority of the Federal support to the agricultural sector (fig. 4).

Figure 4
Net Commodity Credit Corporation outlays, fiscal years 1980-89
Federal spending on commodity programs that provide farm price stability and income support reached record levels during the 1980's.



Source: *(69)*.

Federal Commodity Programs

By providing price stability and income support mechanisms for producers of certain farm commodities, Federal commodity programs stemmed the rising incidence of forced exit from farming.

The Federal Government provides price stability and income support mechanisms for producers of certain farm commodities through programs administered by USDA's Commodity Credit Corporation (CCC). These mechanisms usually attempt to control or influence the supply of or demand for (and, hence, the price of) agricultural commodities. Some of the mechanisms work by passing subsidy costs on to consumers, while others require Federal spending and show as net CCC outlays.

During the 1980's, net CCC outlays for commodity programs reached record highs, totaling $133 billion. Over $82 billion of this amount went to farmers in the form of direct cash payments or cash-equivalent commodity certificates (payment in kind, called PIK). In the peak stress year of fiscal year 1986 (runs from October through September), net CCC outlays totaled $25.8 billion. This large income support had the greatest impact on reducing the number of forced exits from the sector during the decade.

Program benefits were not spread evenly among farmers, however. Commodity programs apply to only select farm commodities. And even among the commodities covered, a disproportionate share of the benefits often goes to a small portion of producers, usually larger than average sized farm operations. This occurs because CCC payments are linked to a farmer's level of production, and product volume is concentrated among a few farmers. For example, under the CCC programs in 1988, farms with at least $250,000 in sales represented about 12 percent of participating farms but received some 34 percent of total CCC payments (*87*). Moreover, commodity programs are not targeted to farmers in financial need. Therefore, even among producers of program commodities, benefits were not evenly distributed, hence their effect on reducing farm exits was uneven among producers.

The major commodity program outlays go to producers enrolled in programs for feed grains and wheat. Combined, these programs accounted for 59 percent of net CCC outlays through the decade, whereas programs for dairy, cotton, and rice accounted for 12, 8, and 4 percent, respectively. Therefore, 83 percent of net CCC spending went to support feed grains, wheat, dairy, cotton, and rice, which accounted for only a third of the total farm receipts for the period. Most livestock producers receive little direct support from CCC programs, but may benefit indirectly from stabilized commodity prices. Nonetheless, producers of nonprogram commodities may have faced a greater probability of forced exit.

Farmers also benefit indirectly from CCC outlays for programs that lower commodity surpluses by increasing exports. Programs providing export credit guarantees, food aid to needy countries, and export subsidizes helped make U.S. food products more competitive in world markets. An example is the Export Enhancement Program (EEP). Authorized by the Food Security Act of 1985, EEP stimulated exports by providing bonuses in the form of surplus CCC stocks to companies that export designated commodities to targeted countries. The market value of EEP bonuses alone totaled over $2.2 billion in fiscal years 1985-88.

Net CCC outlays include costs associated with other programs introduced by the 1985 Act to reduce excess supplies of commodities. The whole-herd buyout program for the dairy industry is an example. Under this program, USDA accepted compensation bids from dairy farmers willing to slaughter their herds and retire from milk production for 5 years. The total cost of the program was $1.8 billion ($1.1 billion in Federal outlays plus a $0.7-billion assessment on other continuing dairy farmers).

The Federal initiatives of the 1980's included programs for conserving resources or improving the environment that are tied to commodity programs. A Conservation Reserve Program (CRP) was introduced in 1985 with the goal of retiring highly erodible farmland from production for 10 years. Payments to farmers for enrolling farmland in the program is expected to total between $20 billion and $25 billion over the life of the program. The CRP offers some offsetting budget savings by reducing commodity program payments to enrolled farmers. By mid-1990, 33.9 million acres had been idled. This assistance likely influences farm numbers by providing a stable income source to farmers (financially stressed or not) with highly erodible land (*51*).

Federal programs also paid farmers for losses suffered through natural disasters during the 1980's. The Disaster Assistance Act of 1988 provided nearly $4 billion to livestock, grain, and other producers to partially offset their losses due to the 1988 drought. Later, another $900 million was provided for 1988/1989 drought-related losses. This type of assistance helped keep farmers on the margin in business when a large drop in income occurred.

Federal Credit Programs: An Overview

Special credit programs were implemented to assist financially stressed farmers and their lenders in order to preserve the operation of many farms and farm lenders that normally would have been forced out of business.

Response to the Debt Problem

The financial hardship experienced by farmers in the 1980's and indirectly throughout rural areas spurred the Federal Government to undertake specific credit initiatives to assist with economic adjustment. Special credit programs implemented to assist financially stressed farmers and their lenders helped preserve the operation of many farms that would have normally been forced out of business. That assistance, in turn, affected farm-service industries and rural communities.

By the early 1980's, the farm sector had accumulated more debt than could be repaid from current and expected future income. The national farm debt, which peaked in 1983 at $193 billion, had accumulated from the mid-1970's as farmers expanded production to meet anticipated future domestic and export needs. Some farmers speculated that farmland values would continue the rapid appreciation, which marked the period. The expansion was partly fueled by an inflating economy and negative real interest rates.

Government farm policies often encouraged the expansion. For example, the Federal Government greatly expanded capital to the sector through the FmHA. FmHA increased annual farm lending from $1 billion in 1974 to over $8 billion by 1981. FmHA supplied a total of $34 billion in farm credit from 1975 through 1981. That increase raised FmHA's share of total agricultural debt from 5.4 to 15.7 percent.

When expectations about rising farm income went unfulfilled in the early 1980's, some farmers were unable to repay the accumulated debt, especially at the high levels of interest. The accumulation of farm debt was concentrated in the hands of a few farm operators. Even at the depth of farm financial problems in 1986, some 39.5 percent of farm operators had no debt and another 39.2 percent had debt/asset ratios below 0.40, a figure considered comfortable for most farm operations. Farm operators with debt/asset ratios above 0.70, a ratio considered to indicate financial stress, accounted for just 8.6 percent of all farm operators. But these few farmers held over 33 percent of total outstanding farm debt in 1986. Some of these farms became highly indebted as a growth strategy in the 1970's when farmland values were rapidly appreciating. When farmland values dropped 35 percent from their peak, these farmers were most vulnerable to failure in the 1980's, since the value of their collateral fell and they could no longer service the high debt with current income.

As early as 1982, the shortage in the farm sector's debt-repayment capacity appeared on the books of agricultural lenders. This repayment shortfall can be measured by the volume of delinquent farm loans (usually defined as loans with payments 90 days or more past-due). By 1986, commercial banks, life insurance companies, the FCS, and the FmHA were reporting $20.6 billion in loan delinquencies, about 17 percent of their farm total loans. These four lender groups are the principal institutional farm lenders, holding nearly 80 percent of farm debt at the end of 1989.

Rising delinquencies quickly translated into loan losses (net loan chargeoffs). From 1984 through 1987, net loan chargeoffs by these principal lenders are estimated to have totaled $10.5 billion (*31*). This loss represents 7.3 percent of the farm debt held by these lenders at the end of 1983. The losses had a negative effect on the desire and capacity of lenders to continue to finance farmers, especially highly indebted farmers.

Mounting defaults caused some agricultural lenders to fail or terminate agricultural lending activities. Agricultural bank failures soared from 1 in 1981 to 69 in 1987. From 1981 through 1989, 311 commercial banks defined as agricultural failed, a figure greater than the total of such failures since the 1930's. There were 5,156 agricultural banks at the end of 1982, compared with 4,180 in 1989. FCS institutions failed as well. The Federal Land Bank of Jackson, Mississippi, failed in 1988 and was liquidated, the first such failure of an FCS district bank. Some local FCS institutions also failed and were either liquidated or merged with healthier ones. Loan losses suffered by life insurance companies prompted some to terminate farm lending altogether.

Loan delinquencies and losses for agricultural lenders, except the FmHA, have fallen sharply since

1986, as problem loans were resolved either through debt restructuring, foreclosure, bankruptcy, voluntary liquidation, or other means. For FmHA, delinquent farm loan payments remain high and losses continue to mount. At mid-1990, FmHA was still reporting a 33-percent delinquency rate.

Continued high delinquencies at FmHA can be explained by several factors. First, FmHA's mission as "lender of last resort" means that a high proportion of its loans can be expected to default in an economic downturn. Second, FmHA undertook a series of loan-servicing policies in the 1980's that delayed loan collections, but that were largely ineffective in returning borrowers to long-term financial viability. Third, a class action lawsuit barred FmHA from collecting loans for nearly 5 years. Fourth, FmHA took on new financially stressed farmers unable to obtain credit from traditional sources. These factors and the assistance measures described below greatly reduced or postponed the number of farmers who normally would have been forced to exit the farm sector during the 1980's. FmHA initiated fewer than 1,500 foreclosures in fiscal years 1983-89.

Assistance to FmHA Customers

Policy initiatives during the 1980's to assist FmHA customers unable to make scheduled payments were unparalleled in the agency's 50-year history. As early as 1982, FmHA initiated special loan-servicing procedures to assist its borrowers. In 1982, a "continuation policy" liberalized cash-flow requirements of existing borrowers by allowing borrowers to obtain new operating credit without showing ability to repay existing FmHA debt. This policy objective was to provide financing to farmers until economic conditions improved, thus halting a rise in farm liquidations. The continuation policy was terminated in November 1985, but was later reinstated in 1987.

In 1984, Congress passed the Emergency Agricultural Credit Act of 1984. The act doubled the lending limit on new FmHA operating loans (credit for purchases of seed, fertilizer, livestock, and other inputs), eased eligibility for emergency loans, allowed extended repayment periods, and increased the availability of limited-resource interest rates (low-cost subsidized rates).

These special loan-servicing tools, coupled with existing tools, helped keep thousands of FmHA customers from failing. The number of borrowers having loan payments consolidated, reamortized, or rescheduled totaled 241,000 for fiscal years 1984-88. FmHA also deferred payments or subordinated collateral to other lenders so FmHA could continue to extend financing. Some 14,904 borrowers received deferrals, and another 172,442 received subordinations.

A special farm credit initiative in 1984 included a Debt Set-Aside Program (DSA) for FmHA customers unable to make scheduled payments and a Debt Adjustment Program (DAP) for non-FmHA customers unable to make scheduled payments. The DSA program allowed FmHA borrowers who could not be assisted by other servicing programs to set aside up to $200,000 of their FmHA debt, interest-free, for up to 5 years, providing certain conditions were met. Nearly 40 percent of FmHA's 263,000 direct-loan borrowers applied, with 16,000 borrowers receiving set-asides. Set-asides totaled $675 million before the program expired on September 30, 1985.

The DAP required a participating commercial lender to write off a minimum of 10 percent of the principal or interest due on existing loans. In return for writing off the debt, FmHA guaranteed up to 90 percent of any loss of remaining principal on the loans. Participation in the program was relatively minor, with 817 guarantees made by the end of fiscal year 1988, the last year of the program.

The Federal Government reversed a policy of a declining role for FmHA begun in the early 1980's by briefly increasing its lending activity during the mid-1980's. Total farm loan obligations doubled from $3 billion in fiscal year 1983 to $6 billion in fiscal year 1985. By doubling its lending activity, FmHA helped some farmers remain in business by assisting existing borrowers and farmers cut off from their traditional lenders.

The Food Security Act of 1985 significantly altered FmHA's lending procedures. This legislation provided borrowers with new rights, such as written notification of adverse loan actions, loan appeal mechanisms, and easy access to loan documents. The act also introduced homestead protection to help FmHA borrowers reclaim their farm residences lost to FmHA through loan collection. The homestead could be rented from FmHA for up to 5 years and could be repurchased afterward.

Assistance to Banks and Their Customers

FmHA also signed an agreement with the Federal Deposit Insurance Corporation (FDIC) in 1985 to assist non-FmHA borrowers unable to secure credit after their bank failed. Under the agreement, the FDIC could request that FmHA send emergency credit teams to screen production loans at failed agricultural banks for loans that would not be

refinanced by another bank without an FmHA guarantee. Farmers then were screened for eligibility for direct FmHA loans.

All farm customers of the closed bank were eligible for credit counseling provided by FmHA. In 1985, teams were dispatched to 41 closed banks and provided letters of guarantees on 116 loans totaling $8.7 million. Program use declined quickly in the following 2 years.

To assist banks, regulators instituted a capital forbearance program that allowed banks to continue operating when capital reserves fell below required levels. Through a new accounting practice, regulators encouraged banks to restructure troubled loans on terms more favorable to the borrower. Also, a provision in the Competitive Equality Act of 1987 allowed small agricultural banks to charge farm loan losses against bank capital over a 7-year period instead of in the year the loss occurs, as previously mandated. This assists the bank in meeting regulatory capital requirements and hence remaining open.

Legislation for the Farm Credit System

The Farm Credit Amendments Act of 1985 addressed the growing financial difficulties of the FCS (*37*). When the farm economy faltered, a high percentage of FCS borrowers defaulted on their payments and loan losses quickly mounted. In 1985, the FCS as a whole reported losses totaling $2.3 billion, bringing into question the financial stability of the FCS.

The 1985 legislation provided mechanisms to ensure that the FCS would not default on outstanding bonds used to finance its loans and to return confidence to investors and healthy borrowers alike. The U.S. Treasury was given authority to purchase FCS bonds with the authorizing consent of Congress, and the FCS Capital Corporation was chartered to channel any assistance funds and coordinate self-help policies among FCS institutions. The 1985 Act also restructured the Farm Credit Administration (FCA), strengthening its role as an arm's-length regulator for the FCS. The legislation required FCS lenders to give borrowers complete and accurate information on loan terms and access to loan documents. Lenders were also required to place a borrower on FCS credit review committees. These policies ensured more equitable treatment of farm borrowers when loan repayment problems cropped up.

Further congressional amendments in October 1986 allowed the FCS to set interest rates without prior FCA approval. FCS banks argued that they needed greater flexibility in setting interest rates to stem the loss of customers to competitors (primarily commercial banks) and to better match each customer's credit risk.

Photo courtesy of William E. Saupe

Federal Credit Programs: The Agricultural Credit Act of 1987

This comprehensive legislation provided much-needed relief to farm borrowers and farm lenders, primarily the FCS and FmHA, by restructuring the delivery and collection of Government-backed credit.

By 1987, it was evident that the prior legislative attempts to assist the FCS were insufficient. Late that year, Congress passed the sweeping Agricultural Credit Act of 1987. It provided the FCS with up to $4 billion in assistance (the first assistance since the 1930's) and restructured the Federal delivery of farm credit.[10] The act returned farmer and investor confidence to the FCS by assuring it would not fail and by providing it with the tools to repair its financial strength. Noteworthy changes for the FCS include: lower cooperative stock requirements of borrowers, a new FDIC-style insurance fund, new capital requirements to guard against future losses, and further consolidation of FCS institutions to lower operating costs.[11]

Although not affecting farm numbers in the 1980's, the new act created a new institution that could reduce farm credit costs in the future. The Federal Agricultural Mortgage Corporation, or Farmer Mac, was set up under the umbrella of the FCS to operate a secondary market for farm and rural housing mortgages. In this context, commercial banks, life insurance companies, the FCS, and other lenders can originate mortgages to be pooled and sold as marketable securities to investors. Loan sales can provide lenders with incentives to make long-term fixed-rate loans. The act also authorized a secondary market for FmHA-guaranteed farm loans, to increase the attractiveness of the guaranteed-loan programs and hence expand the availability of credit to higher risk farmers.

The 1987 Act also further strengthened the rights of FCS and FmHA borrowers, thereby reducing forced exits from farming. The act requires the FCS and FmHA to implement mandatory debt-restructuring policies, which enables borrowers to remain in business and others to retain farms lost through foreclosure. Each FCS district was required to adopt debt-restructuring policies for delinquent loans before foreclosure can begin. Loans are to be restructured if such action is lower in cost than foreclosure. Restructuring in some instances includes debt forgiveness.

The legislation provided similar, but more encompassing, debt-restructuring rules for the FmHA. The new policy is significant, since FmHA was barred from initiating loan collections during the mid-1980's and since previous loan-servicing did not stem the rise of delinquent accounts.

The new rules are now part of a comprehensive five-phase loan-servicing policy that has the dual objective of reducing farm loan delinquencies while at the same time keeping farmers on the farm at the lowest cost to the Government. Delinquent farm borrowers are now placed in a loan-servicing phase and provided with specific tools to assist them in resolving their delinquent loan account. In the first two phases, FmHA can reduce interest rates, reschedule, reamortize, or defer loan payments. If these actions are insufficient, FmHA must in the third phase write down or reduce the debt to the calculated net recovery value of the collateral. This is the value the Government would receive from loan-backed collateral after all disposal expenses were paid. All loan restructuring decisions require strict deadlines and are subject to strong appeal rights.

If debt restructuring does not avert foreclosure, both FCS and FmHA borrowers can lease or repurchase lost farms. Former FCS customers can repurchase farms at the fair market value and have the right to match sale or lease offers made by third parties (such a provision is called the right of first refusal). In the latter phases of FmHA's debt-restructuring program, borrowers who cannot be assisted under earlier loan-servicing phases have the option to pay off FmHA loans at the Government's calculated net recovery value. Finally, former FmHA customers can repurchase lost property at the Government's calculated net recovery value, lease lost property with an option to buy, or exercise homestead protection rights if the property contains the borrower's residence. These farm preservation rights are transferable to immediate family members.

[10] The FCS was given access to up to $4 billion in bond issues backed by the U.S. Treasury and administered by the new FCS Assistance Board. The FCS Capital Corporation was disbanded. By September 1989, $847 million in bonds had been issued. The FCS must repay all interest and principal on those bonds within 15 years.

[11] The 24 Federal Intermediate Credit Banks and Federal land banks merged to form 12 Farm Credit Banks, and the 12 district banks for cooperatives slimmed to just 3. At the local level, production credit associations (PCA's) and Federal Land Bank Associations (FLBA's) were allowed to vote on merging and to switch district affiliation. By mid-1985, there were 318 PCA's and 390 FLBA's. By the end of the 1989, they had consolidated to 85 PCA's, 148 FLBA's, and 39 Agricultural Credit Associations (ACA's). ACA's serve members with combined lending services once exclusively held only by FLBA's and PCA's.

Federal Credit Programs: Chapter 12 Farm Bankruptcy

The chapter 12 bankruptcy provision, enacted in 1986, was specifically designed to rehabilitate family farms in financial jeopardy.

Farm exit numbers toward the end of the decade were affected when chapter 12 was added to the U.S. Bankruptcy Code on November 26, 1986.[12] Chapter 12 is unique since it is designed specifically for, and can be used only by, family-sized farms, defined as those which received at least 50 percent of gross income from farming and those whose total debt does not exceed $1.5 million. Under other bankruptcy statutes, farmers often found it cumbersome to restructure their debts, making it difficult to benefit from bankruptcy reorganization and hence remain in business.

Important among chapter 12's many provisions is the greater ability of borrowers to develop debt-restructuring plans forcing lenders to write down secured debt to the fair market value of its collateral. Farmers who borrowed heavily at periods of peak land prices usually benefit the most from such reductions. Also important under chapter 12 were new rules simplifying and expediting farm cases through the bankruptcy courts. When filing under other statutes, farmers had often found their reorganization plans delayed by procedures and crowded court schedules.

Chapter 12 had an immediate impact on reducing forced farm liquidations, with the greatest number of farmers taking advantage of it in the first year after its introduction; the number of filings has since declined. Chapter 12 filings declined from 6,064 in 1987 to 2,035 in 1988 and to 1,433 in 1989 (table 9). The greatest percentage of filings have occurred in Corn Belt and Northern Plains States. Not all farmers develop restructuring plans that win court approval. Of those who do, many will fail to successfully complete the 3- to 5-year repayment plans. An unknown benefit of chapter 12 is the number of farmers having their loans voluntarily restructured by lenders aware of its more favorable treatment of farm debtors.

Whether required by chapter 12, by statute, or done voluntarily, all lenders restructured billions of dollars' worth of loans during the 1980's and assisted many farm customers to retain their farm operations. For example, the FCS restructured some 77,000 loans, or $10.8 billion, from 1987 through mid-1990. This represents about 18.5 percent of all FCS loans held at the beginning of 1987.

[12] Without congressional action, the code is due to expire on October 1, 1993.

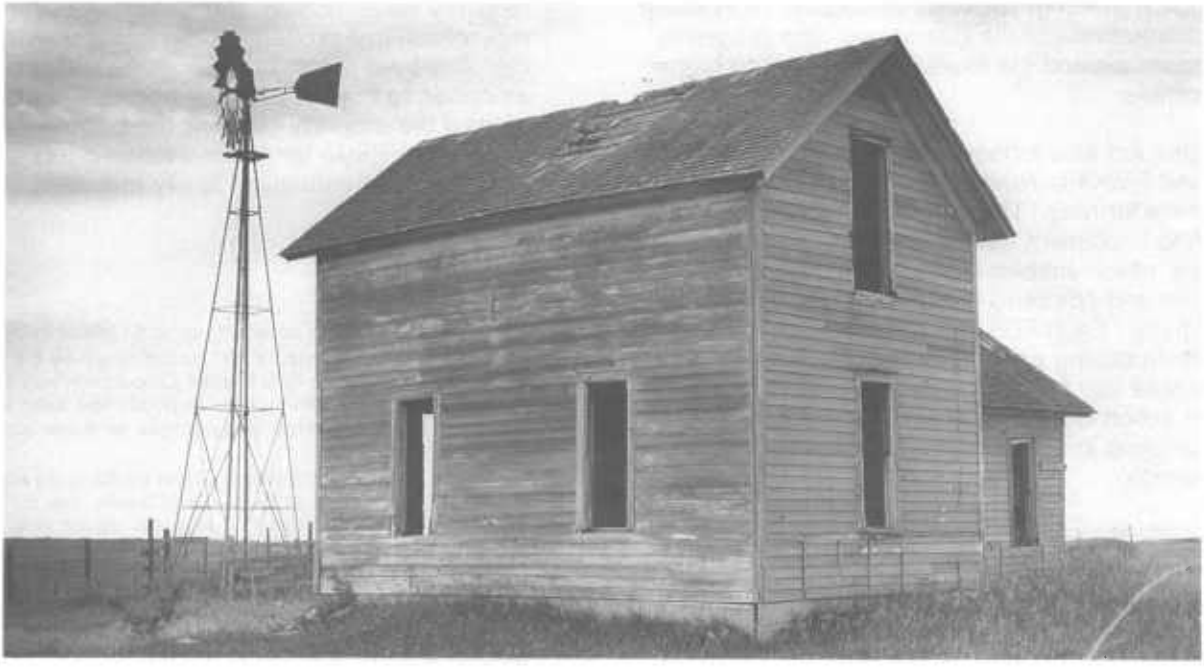


Photo courtesy of Jerome Stam

Table 9--Chapter 12 case filings by farm production region

Heaviest participation was in the first year after the provision was introduced, especially in the Northern Plains and Corn Belt.

Farm production region	1986[1]	1987	1988	1989	Total
			Number		
Northeast	9	99	39	24	171
Lake States	50	465	175	147	837
Corn Belt	103	1,292	447	290	2,132
Northern Plains	148	1,553	358	218	2,277
Appalachian	92	470	102	68	732
Southeast	47	335	105	83	570
Delta States	44	547	170	115	876
Southern Plains	41	394	185	170	790
Mountain	42	546	256	155	999
Pacific	24	363	188	163	738
U.S. total	600	6,064	2,025	1,433	10,122

Note: Northeast = CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT. Lake States = MI, MN, WI. Corn Belt = IL, IN, IA, MO, OH. Northern Plains = KS, ND, NE, SD. Appalachian = KY, NC, TN, VA, WV. Southeast = AL, FL, GA, SC. Delta States = AR, LA, MS. Southern Plains = OK, TX. Mountain = AZ, CO, ID, MT, NV, NM, UT, WY. Pacific = AK, CA, HI, OR, WA.

[1]Filings began on November 26, 1986.

Source: *(1).*

State Initiatives in Perspective

States also responded to farm financial stress by enacting emergency credit programs and by easing restrictions in agricultural lending laws.

It is difficult to determine how much State initiatives during the 1980's may have alleviated farm financial stress and hence reduced forced farm exits. States generally responded to farm financial stress with changes to agricultural lending laws and emergency credit programs. During the 1987-88 period, the total amount of subsidized credit to farmers through State farm credit programs was estimated to be approximately $50 million each year. During 1988, 28 States operated one or more programs that provided subsidized credit to their farmers (data for earlier years are not available). These State efforts were particularly important in some Midwest States.

Changes to Lending Laws

Some new State laws delayed foreclosure, permitted partial repayment of farm debt, or assisted borrowers in retaining farm assets, particularly farm residences and farmland (often referred to as borrower rights laws). State laws are applied more broadly than most Federal laws, which are generally targeted toward borrowers of a particular lender or group of lenders. Most State laws were passed from 1984 through 1987, and by 1989 some were being considered for repeal or were approaching their expiration date.

Many States considered such legislation but only a handful, concentrated in the High Plains and the Corn Belt, enacted changes. Iowa and Minnesota were the most progressive, but Colorado, Kansas, Nebraska, North Dakota, Oklahoma, and Wyoming also made changes.

The most common policy response was to help farmers retain their farms after foreclosure. At least five States passed homestead protection laws that allow farmers to retain a farm residence and a surrounding parcel of land, sometimes as much as 160 acres, after foreclosure proceedings. This objective was accomplished by allowing the homestead to be sold separately from the adjoining farmland at the foreclosure sale. Rural farm residences often have a low value relative to the adjoining farmland, so the residences were easier for the farmer to redeem at foreclosure.

Several State approaches helped farmers retain their farmland as well as their farm residence. Colorado and Iowa gave former owners the right of first refusal on leases for farmland lost through foreclosure. Minnesota extended this provision to include offers of purchase as well. Wyoming extended the period in which farmers could redeem farmland after the foreclosure sale from 9 to 12 months.

In 1986, Kansas passed legislation allowing insolvent farmland owners to apply for a stay from foreclosure or collection action for up to 3 successive years. The debtor must pay installments on all interest charges and any depreciation on equipment, but the debtor is given the right to redeem all or part of the farm equipment or land at the fair market value if timely payments are made.

Such changes in farm foreclosure legislation were not unique to the mid-1980's. Some existing laws trace back to previous periods of farm financial stress. Widespread farm debt-relief legislation was enacted during the 1930's. From 1932 to 1934, 25 States passed farm foreclosure moratoria, halting creditors from gaining possession of a farmer's land after default.

Farm Credit Mediation Programs

To help farmers avoid farm foreclosure, States implemented farm credit mediation programs. Under these programs, State-appointed mediators bring creditor(s) and debtor(s) together to advise, counsel, and assist in the development of a debt-restructuring agreement between all parties.[13] Mediation usually lasts for 60 days, with participation being either mandatory or voluntary. Agreements under mediation are not mandatory, but good faith participation by all parties is required.

Pioneered by Iowa and Minnesota, such programs have successfully reduced farmer-lender tensions and produced successful debt-restructuring agreements in an orderly fashion that allow farm operations to continue. Mediation provides an alternative to using the bankruptcy courts. Lenders' reaction to mediation has been mixed. Some argued that it just delays inevitable foreclosure and adds additional costs. Others found that mediation forces farm borrowers to communicate and alleviates community tensions.

Providing mediation services can be costly. In accordance with the Agricultural Credit Act of 1987,

[13] Programs are often operated by the Cooperative Extension System or State Departments of Agriculture.

the Federal Government helps share the costs. Through FmHA, the Government began providing matching grants for mediation programs in late 1988. In fiscal years 1989-90, FmHA provided at least $3 million in matching grants to 17 States (table 10). The Food, Agriculture, Conservation, and Trade Act of 1990 authorizes FmHA to provide funding through fiscal year 1995. As need wanes and authorizations expire, many programs could be terminated.

Emergency Credit Programs

A number of States already operated farm credit programs going into the 1980's. Many of these programs were undertaken during the 1970's, when rapidly rising land values and interest rates caused concern among State policymakers about the ability of new farmers to get started in agriculture. In the 1980's, when farmland values crashed and farm debt-servicing problems rose, States adopted new emergency farm credit programs or modified the existing programs. In 1986, 14 States added such programs. By the end of 1988, 32 States had such programs in place (22).

Often the objective for these programs is to provide a temporary source of credit to farmers unable to find credit at a reasonable cost due to their current financial condition. These programs typically target farmers experiencing temporary cash-flow shortages, who can be assisted with temporary operating credit or interest rate relief.

States use a variety of approaches to operate and fund these programs. Common approaches include providing direct loans, guaranteeing loans made by farm lenders, or providing farm lenders with incentives to reduce interest rates. The latter is accomplished through the tax system: by depositing State funds with the lender at below-market rates and by sharing the costs of some interest rates paid by the farmer (buydowns). Like other initiatives, these programs are slowly being phased out or are reaching their expiration.

Other Assistance

States were also active in providing crisis-intervention services to help farmers cope with financial difficulties and related problems. Often initial access to these services is provided through a hotline phone number. These hotlines act as information sources, which direct or refer farmers to individuals or agencies that can best provide the needed assistance.

The most common services offered are financial counseling or analysis. Some States, such as Nebraska, provide emotional and career counseling, legal advice, and other services to help farmers remain in agriculture or make the transition out of farming. Usually the services are provided by the State Extension Service or by the State Department of Agriculture.[14]

At least 20 States were operating special farm crisis-intervention services in 1988. Privately operated, but similar, services are also available in some States. As the financial recovery of the sector continues and need for these services declines, States are dropping the services.

[14] Research grants and greater resources were also directed to Extension Service staff to improve education for farm financial management and to provide information on alternative income sources for farmers.

Table 10--State agricultural loan mediation programs receiving FmHA matching grants in fiscal year 1989-90

Three million dollars per year in Federal aid brought farmers and lenders in 17 States to the bargaining table to work out ways to restructure debt and avoid foreclosure.

State	Amount of grant received	
	1989	1990
	Dollars	
Alabama	110,200	170,840
Arkansas	NA	82,500
Indiana	29,090	37,340
Iowa	305,000	255,890
Kansas	431,150	451,990
Minnesota	500,000	500,000
Mississippi	75,040	81,160
Montana	75,000	15,000
Nebraska	168,140	177,650
New Mexico	55,050	59,500
North Dakota	260,020	375,000
Oklahoma	269,870	262,760
South Dakota	97,000	92,360
Texas	500,000	427,970
Utah	12,000	10,000
Wisconsin	87,440	93,880
Wyoming	25,000	55,000
Total	3,000,000	3,148,840

NA = Not applicable.
Source: (76).

Measuring the Effects of Government Programs

Without the increased Government support, the number of 1980-88 farm business failures due to financial problems likely would have exceeded 200,000 to 300,000 farms. The amount of benefits varied by commodity, region, eligibility, and participation.

Some Federal and State agricultural programs, especially commodity programs, are neither well targeted to farms with financial stress nor to farm families with low incomes (*34*). Changing these programs, however, could have severe impacts on these farm families and their rural economies, because funds received under their provisions typically constitute high proportions of both gross and net cash receipts for the commodities to which they apply. Sumner notes that farm commodity programs affect the size distribution of farms and other structural distributions by influencing the basic factors that determine the optimal sizes of farms in the industry (*64*). He further notes that in the longer run, the entry and exit of farms and farmers may also be affected by commodity programs (*64*). In Stanton's view, "the net effect of these programs in retrospect has not been to try to keep as many people as possible in farming but to ensure that they have some minimum level of income" (*62*, p. 324).

Government intervention in agriculture can be measured in terms of budget outlays for farm programs. Such outlays measure the value of direct transfers from consumers and taxpayers to the farm sector, but they are deficient measures of total government support. Some indirect policy instruments, such as tariffs, import quotas, and variable import levies, allow producers to receive prices higher than prevailing world market prices. Government budget outlays also do not reveal assistance to producers in the form of other types of government intervention, such as credit offered by government-sponsored enterprises or concessional credit offered at below-market rates of interest.

The producer subsidy equivalent (PSE) has been developed to measure the total effects of government policies on agricultural producers. This measure includes the effects of policies that result in direct budget outlays, such as deficiency payments and input subsidies, and policies that do not, such as tariffs, import quotas, and variable levies. The PSE is an estimate of the amount of subsidy that would be needed to compensate producers for eliminating all government supports such as price supports, import quotas, or tariffs. These subsidy equivalents show the change in farm producer revenue due to government actions.

In short, PSE's are measures of the ratio of total government support to total farm revenue (including government revenue support). Total government support includes the benefits of import protection, direct payments, credit, research, plus input and marketing subsidies. The larger a nation's PSE, the more its producers could lose if the government support were removed and a free-trade posture were assumed. Research has shown that the U.S. average policy transfer as a percentage of value of receipts (PSE) was 24.6 percent for the 1982-86 period (*72*). That calculation ranged from a low of 17.3 percent in 1982 to a high 35.8 percent in 1986. The transfers to U.S. farmers studied were for the following commodity groups: wheat, feed grains, soybeans, rice, sugar, dairy, beef, pork, and poultry.

This amount of Federal support was an important factor in the continued economic viability of farms. Moreover, the level of support substantially increased during the 1980's as the PSE measure shows. Without the increased support, the number of 1980-88 farm business failures due to financial problems likely would have exceeded the 200,000 to 300,000 figure noted earlier, and the 1980-90 decline in farm numbers probably would have significantly exceeded the 296,400 level. The amount of benefits vary according to commodity, region, eligibility, and participation, but the overall effect on the sector is important.

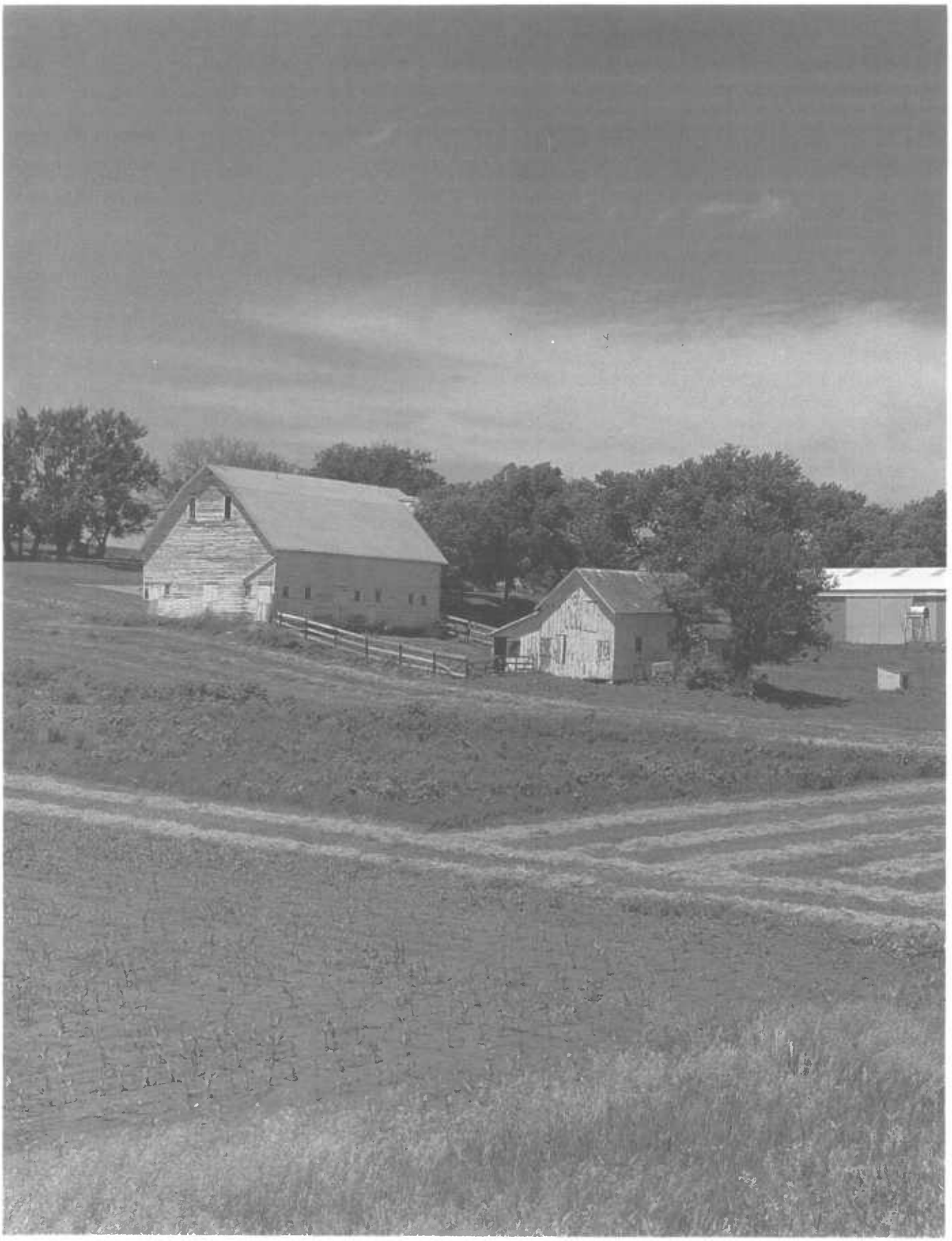


Photo courtesy of J. Norman Reid

References

(1) Administrative Office of the United States Courts. Unpublished data, 1986-90.

(2) Ahearn, M. Financial Well-Being of Farm-Operators and Their Households, AER-563. U.S. Dept. Agr., Econ. Res. Serv., Sept. 1986.

(3) Albrecht, D.E., S.H. Murdock, R.A. Hamm, and K.L. Schiflett. The Farm Crisis in Texas: Changes in the Financial Condition of Texas Farms and Ranchers, 1985-86, Dept. of Rural Sociology Tech. Rept. No. 87-3. College Station, TX: Texas Agr. Exp. Sta., 1987.

(4) Albrecht, D.E., S.H. Murdock, K.L. Schiflett, R.R. Hamm, F.L. Leistritz, and B. Eckstrom. "The Consequences of the Farm Crisis for Rural Communities," Journal of the Community Development Society, Vol. 19, No. 2, 1988, pp. 119-35.

(5) Alston, L.J. "Farm Foreclosure Moratorium Legislation: A Lesson from the Past," American Economic Review, Vol. 74, No. 3, June 1984, pp. 445-57.

(6) _____. "Farm Foreclosures in the United States During the Interwar Period," Journal of Economic History, Vol. 43, No. 4, Dec. 1983, pp. 885-903.

(7) Alston, L., J.T. LaFrance, and R.R. Rucker. "An Economic Analysis of the Determinants of Farm Failure Rates: 1912-1980," Paper presented at the American Agricultural Economic Association Annual Meeting, Baton Rouge, LA, Aug. 1, 1989.

(8) American Bankers Association. "Mid-Year Farm Credit Survey," Unpublished data, 1982-89.

(9) Ball, V.E. "Output, Input, and Productivity Measurement in U.S. Agriculture, 1948-79," American Journal of Agricultural Economics, Vol. 67, No. 3, Aug. 1985, pp. 475-86.

(10) Banks, V.J., and C.L. Beale. Farm Population Estimates, 1910-79, SB-523. U.S. Dept. Agr., Rural Dev. Serv., July 1973.

(11) Barkley, A.P. The Determinants of the Migration of Labor Out of Agriculture in the United States: 1940-1985, Staff Paper No. 90-1. Dept. Agr. Econ., Kansas State Univ., July 1989.

(12) Barry, P.J. "Impacts of Regulatory Change on Financial Markets for Agriculture," American Journal of Agricultural Economics, Vol. 63, No. 5, Dec. 1981, pp. 905-12.

(13) Beale, C.L. "Significant Recent Trends in the Demography of Farm People," Proceedings of the Philadelphia Society for Promoting Agriculture 1987-1988. May 5, 1988, pp. 36-49.

(14) _____. "The Negro in American Agriculture," The American Negro Reference Book, J.P. Davis, ed. Englewood Cliffs, NJ: Prentice Hall, Inc., 1966, pp. 161-204.

(15) Bentley, S.E., P.F. Bartlett, F.L. Leistritz, S.H. Murdock, W.F. Saupe, D.E. Albrecht, B.L. Ekstrom, R.R. Hamm, A.G. Leholm, R.W. Rathge, and J. Wanzek. Involuntary Exits From Farming: Evidence From Four Studies, AER-625. U.S. Dept. Agr., Econ. Res. Serv., Nov. 1989.

(16) Bentley, S.E., and W.E. Saupe. Exits from Farming in Southwestern Wisconsin, 1982-86, AER-631. U.S. Dept. Agr., Econ. Res. Serv., Feb. 1990.

(17) Brewster, David E. "Some Historical Notes on The Farm Definition," Journal of Agricultural Economics Research, Vol. 29, No. 1, Jan. 1977, pp. 28-30.

(18) Carlin, T.A., and J. Crecink. "Small Farm Definition and Public Policy," American Journal of Agricultural Economics, Vol. 61, No. 5, Dec. 1979, pp. 933-39.

(19) Collins, T., K. Stephenson, J.R. Skees, and L.E. Swanson. The Farmer Speaks: Kentucky Farm Change, 1986-1988, Special Extension Publication. Depts. of Agr. Econ. and Soc., Univ. of Kentucky, Apr. 1990.

(20) Conneman, G.J., and D.H. Harrington. "Implications of Exit and Entry of Farm Firms in Agricultural Supply Analysis," Journal of Agricultural Economics Research, Vol. 21, No. 2, Apr. 1969, pp. 40-44.

(21) Deavers, K.L. "Lagging Growth and High Poverty: Do We Care?" Choices, Second quarter 1989, pp. 4-7.

(22) Duncan, D., and J. Mikesell. "State Credit Programs Phasing Down," Agricultural Outlook, AO-155. U.S. Dept. Agr., Econ. Res. Serv., Aug. 1989, pp. 23-24.

(23) Edwards, C., M.G. Smith, and R.N. Peterson. "The Changing Distribution of Farms by Size: A Markov Analysis," Journal of Agricultural Economics Research, Vol. 37, No. 4, Fall 1985, pp. 1-16.

(24) Erhrensaft, P., P. LaRamee, R.D. Bollman, and F.H. Buttel. "The Microdynamics of Farm Structural Change in North America: The Canadian Experience and Canada-U.S.A. Comparisons," American Journal of Agricultural Economics, Vol. 66, No. 5, Dec. 1984, pp. 823-28.

(25) Foote, R.J. Concepts Involved in Defining and Identifying Farms, ERS-448. U.S. Dept. Agr., Econ. Res. Serv., June 1970.

(26) Gale, H.F., Jr. "How Economic Conditions Changed the Number of U.S. Farms, 1960-88," Journal of Agricultural Economics Research, Vol. 42, No. 2, 1990, pp. 22-29.

(27) _____. "Impacts of Economic Events on the Number of Farms in the 1970's and 1980's: A Regional Analysis," Paper presented at the Southern Regional Science Association Annual Meeting, Washington, DC, Mar. 1990.

(28) Gale, H.F., Jr., and D. Henderson. Estimating Entry and Exit of U.S. Farms, ERS Staff Rpt. No. AGES9119. U.S. Dept. Agr., Econ. Res. Serv., Mar. 1991.

(29) Gale, H.F., Jr., and R.N. Peterson. "Regional Patterns of Entry, Exit, and Growth of Farms," Unpublished paper, U.S. Dept. Agr., Econ. Res. Serv., July 1990.

(30) Grove, E.W. "The New Dichotomy in Agriculture," Journal of Farm Economics, Vol. 45, No. 2, May 1963, pp. 277-84.

(31) Hanson, G.D., G.H. Parandvash, and J. Ryan. "Loan Repayment Problems of Farmers in the Mid-1980's," U.S. Dept. Agr., Econ. Res. Serv., forthcoming.

(32) Hanson, G.D., B.F. Stanton, and M.A. Ahearn. Alternative Measures of Farm Output to Classify Farms by Size, TB-1749. U.S. Dept. Agr., Econ. Res. Serv., Jan. 1989.

(33) Harl, N.E. Lessons Learned From the Farm Debt Crisis of the 1980's, W.I. Myers Memorial Lecture. Ithaca, NY: Dept. Agr. Econ., Cornell Univ., Oct. 19, 1988.

(34) Harrington, D.H. "Agricultural Programs: Their Contribution to Rural Development and Economic Well-Being," Rural Economic Development in the 1980's: Preparing For the Future, ERS Staff Rpt. No. AGES870724. U.S. Dept. Agr., Econ. Res. Serv., July 1987, pp. 12(1)-12(23).

(35) Harrington, D., and T.A. Carlin. The U.S. Farm Sector: How Is It Weathering the 1980's? AIB-506. U.S. Dept. Agr., Econ. Res. Serv., Apr. 1987.

(36) Harrington, D.H., D.A. Reimund, K.H. Baum, and R.N. Peterson. U.S. Farming in the Early 1980's: Production and Financial Structure, AER-504. U.S. Dept. Agr., Econ. Res. Serv., Sept. 1983.

(37) Hughes, M.R. Recent Developments at the Farm Credit System, AIB-572. U.S. Dept. Agr., Econ. Res. Serv., Sept. 1989.

(38) Hurley, R. "Census Concepts: Past, Present, and Future," Journal of Farm Economics, Vol. 44, No. 2, May 1962, pp. 616-21.

(39) _____. "Problems Relating to Criteria for Classification of Farms," Journal of Farm Economics, Vol. 47, No. 5, Dec. 1965, pp. 1565-71.

(40) Kislev, Y., and W. Peterson. "Prices, Technology and Farm Size," Journal of Political Economy, Vol. 90, No. 3, June 1982, pp. 578-95.

(41) LaDue, E.L., and D.J. Leatham. "Floating versus Fixed-Rate Loans in Agriculture: Effects on Borrowers, Lenders and the Agriculture Sector," American Joural of Agricultural Economics, Vol. 66, No. 5, Dec. 1984, pp. 607-13.

(42) Lambert, C.D., P.L. Kelley, and B.L. Flinchbaugh. "Farm Operator Characteristics: Implications for Policy," North Central Journal of Agricultural Economics, Vol. 11, No. 2, July 1989, pp. 265-76.

(43) Lee, J.E. Farm Sector Financial Problems: Another Perspective, AIB-499. U.S. Dept. Agr., Econ. Res. Serv., May 1986.

(44) Leistritz, F.L., D.E. Albrecht, A.G. Leholm, and S.H. Murdock. Impact of Agricultural Development on Socioeconomic Change in Rural Areas, Dept. Agr. Econ. Staff Paper No. 85005. Fargo, ND: North Dakota State University, 1985.

(45) Leistritz, F.L., and B.L. Eckstrom. "The Financial Characteristics of Producing Units and Producers Experiencing Financial

Stress," The Farm Financial Crisis: Socio-economic Dimensions and Implications For Producers and Rural Areas, S.H. Murdock and F.L. Leistritz, eds. Boulder, CO: Westview Press, 1988, pp. 73-95.

(46) Leistritz, F.L., B.L. Ekstrom, and R.W. Rathge. Farm Families in Transition: Implications for Rural Communities, Dept. Agr. Econ. Staff Paper No. 88001. Fargo, ND: North Dakota State Univ., 1988.

(47) Lin, W., G. Coffman, and J.B. Penn. U.S. Farm Numbers, Sizes, and Related Structural Dimensions: Projections to Year 2000, TB-1625. U.S. Dept. Agr., Econ., Stat., and Coop. Serv., July 1980.

(48) Majchrowicz, T.A. Patterns of Change in the Rural Economy, 1969-86, RDRR-73. U.S. Dept. Agr., Econ. Res. Serv., Dec. 1989.

(49) Murdock, S.H., and F.L. Leistritz (eds.). The Farm Financial Crisis: Socioeconomic Dimensions and Implications For Producers and Rural Areas. Boulder, CO: Westview Press, 1988.

(50) Murdock, S.H., L.B. Potter, R.R. Hamm, K. Backman, D.E. Albrecht, and F.H. Leistritz. "The Implications of the Current Farm Crisis for Rural America," The Farm Financial Crisis: Socioeconomic Dimensions and Implications For Producers and Rural Areas, S.H. Murdock and F.L. Leistritz, eds. Boulder, CO: Westview Press, 1988, pp. 141-68.

(51) Osborn, T., and K. Konyar. "A Fresh Look at the CRP," Agricultural Outlook, AO-166. U.S. Dept. Agr., Econ. Res. Serv., Aug. 1990, pp. 33-37.

(52) Reinsel, E. "A Review of Suggestions for Improving Agriculture, Food Sector, and Rural Data," Paper presented at the Census Advisory Committee on Agricultural Statistics Meeting, Jeffersonsville, IN, May 18, 1988.

(53) Rucker, R.R. "The Effects of State Relief Legislation on Private Lenders and Borrowers: The Experience of the 1930's," American Journal of Agricultural Economics, Vol. 72, No. 1, Feb. 1990, pp. 24-34.

(54) Rucker, R.R., and L.J. Alston. "Farm Failures and Government Intervention: A Case Study of the 1930's," American Economic Review, Vol. 77, No. 4, Sept. 1987, pp. 724-30.

(55) Ryan, J. "States Survey Farm Financial Conditions," Agricultural Outlook, AO-123. U.S. Dept. Agr., Econ. Res. Serv., Sept. 1986, pp. 21-22.

(56) Shepherd, L.E., and R.A. Collins. "Why Do Farmers Fail? Farm Bankruptcies 1910-78," American Journal of Agricultural Economics, Vol. 64, No. 4, Nov. 1982, pp. 609-15.

(57) Smith, M.G. A Conditional Approach to Projecting Farm Structure, ERS Staff Rpt. No. AGES880208. U.S. Dept. Agr., Econ. Res. Serv., Apr. 1988.

(58) _____. "Entry, Exit, and the Age Distribution of Farm Operators, 1974-82," Journal of Agricultural Economics Research, Vol. 39, No. 4, Fall 1987, pp. 2-11.

(59) _____. "Older Farmers, Bigger Farms in the Offing," Rural Development Perspectives, Vol. 4, Issue 3, June 1988, pp. 31-35.

(60) Smith, M.G., C. Edwards, and R.N. Peterson. "How Many Farms? Projecting U.S. Farm Numbers and Sizes," Rural Development Perspectives, Vol. 3, Issue 3, June 1987, pp. 16-20.

(61) Stanton, B.F. Changes in Farm Size and Structure in American Agriculture in the Twentieth Century, Dept. Agr. Econ. Staff Paper No. 89-5. Ithaca, NY: Cornell Univ., Feb. 1989.

(62) _____. "Commentary," U.S. Agricultural Policy: The 1985 Farm Legislation, B.L. Gardner, ed. Washington, DC: American Enterprise Inst. for Public Policy Research, 1985, pp. 321-28.

(63) Stanton, B.F., and N.L. Bills. Approaches to Defining and Classifying Farms, Dept. Agr. Econ. Staff Paper No. 88-17. Ithaca, NY: Cornell Univ., Aug. 1988.

(64) Sumner, D.A. "Farm Programs and Structural Issues," U.S. Agricultural Policy: The 1985 Farm Legislation, B.L. Gardner, ed. Washington, DC: American Enterprise Inst. for Public Policy Research, 1985, pp. 283-320.

(65) Thompson, Paul B. "Agricultural Ethics and Economics," Journal of Agricultural Economics Research, Vol. 42, No. 1, Winter 1990, pp. 3-7.

(66) U.S. Congress, House Committee on Agriculture. Redefinition of the Term "Farm," Hearings before the Subcommittee on Family Farms and Rural Development, 94th Cong., 1st sess., Nov. 7 and 12, 1975.

(67) U.S. Congress, Office of Technology Assessment. Technology, Public Policy, and the Changing Structure of American Agriculture, OTA-F-285. 1986.

(68) U.S. Department of Agriculture, Economic Research Service. Agricultural Income and Finance: Situation and Outlook Report, AFO-40. Feb. 1991.

(69) _____. Agricultural Outlook, Various issues.

(70) _____. Agricultural Resources: Agricultural Land Values and Markets--Situation and Outlook Report, AR-18. June 1990.

(71) _____. Economic Indicators of the Farm Sector: National Financial Summary, Various issues.

(72) _____. Estimates of Producer and Consumer Subsidy Equivalents: Government Intervention in Agriculture, 1982-86, ERS Staff Rpt. No. AGES880127. Apr. 1988.

(73) _____. Farm Real Estate Market Developments: Outlook and Situation Report, CD-86. Aug. 1981.

(74) _____. Financial Characteristics of U.S. Farms, January 1, 1986, AIB-500. Aug. 1986.

(75) U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service. Structural Issues of American Agriculture, AER-438. Nov. 1979.

(76) U.S. Department of Agriculture, Farmers Home Administration. "Program Levels and Status of Apportionments," Unpublished data, various issues.

(77) U.S. Department of Agriculture, National Agricultural Statistics Service. Agricultural Statistics, Various issues.

(78) _____. Crop Production. August issues, various years.

(79) _____. Farms and Land in Farms: Final Estimates by States, 1979-87, SpSp 5 (89). Aug. 1989.

(80) _____. Farm Numbers, Land in Farms, SpSy 3 (7-90). July 1990.

(81) U.S. Department of Agriculture, Statistical Reporting Service. Farms and Land in Farms: Final Estimates by States, 1969-75, SB-594. Dec. 1977.

(82) _____. Farms: Revised Estimates 1959-70, SB-507. Jan. 1973.

(83) _____. Number of Farms 1910-1959 Land in Farms 1950-1959 by States, SB-316. June 1962.

(84) U.S. Department of Commerce, Bureau of the Census. Census of Agriculture, Various issues.

(85) U.S. Department of Commerce, Bureau of the Census, jointly with the U.S. Department of Agriculture, Economic Research Service. Residents of Farms and Rural Areas: 1989, Current Population Reports, Series P-20, No 446. 1990.

(86) _____. Residents of Farms and Rural Areas, Current Population Reports, Series P-20 (formerly the Farm Population P-27 Series), Various issues.

(87) Whittaker, G. "Payments Go to Largest Farms," Agricultural Outlook, AO-162. U.S. Dept. Agr., Econ. Res. Serv., Apr. 1990, pp. 25-27.

(88) Wilkening, E., and J. Gilbert. "Family Farming the United States," Family Farming in Europe and America, B. Galeski and E. Wilkening, eds. Boulder, CO: Westview Press, 1987, pp. 271-301.

(89) Wisconsin Agricultural Reporting Service. Midwest 1986 Farm Finance Report. Madison, WI, 1986.

Appendix table 1--Indicators of financial stress in agriculture as reported by farm banks, by region, 1982-89[1]

Item	United States								Northeast[2]								Corn Belt[3]							
	1982	1983	1984	1985	1986	1987	1988	1989	1982	1983	1984	1985	1986	1987	1988	1989	1982	1983	1984	1985	1986	1987	1988	1989
	Percent																							
Farm loan volume delinquent 30 days or more (in June)	3.9	3.7	4.5	5.3	6.0	2.7	1.6	1.5*	3.4	3.5	5.3	6.9	6.9	2.9	1.4	1.9*	4.0	3.5	4.3	5.2	5.4	2.3	1.5	1.1*
Banks' farm borrowers who had bank financing discontinued (during the year ending in June)	3.3	2.9	3.4	4.5	5.6	3.2	1.7	1.3	2.8	2.7	3.5	4.7	6.2	3.3	1.8	1.4	2.8	2.5	3.0	3.8	4.8	2.9	1.5	1.1
Farm borrowers banks expect to discontinue (during the year ending next June)	4.4	2.0	3.1	5.7	6.7	2.1	1.5	1.7	3.5	1.8	3.2	6.0	6.8	2.3	1.6	1.9	4.2	1.5	3.0	5.3	5.5	1.6	1.6	1.1
Banks' farm borrowers loaned up to practical limit (in June)	31.9	28.1	32.8	36.7	38.8	28.8	22.6	24.6	26.1	26.7	30.1	34.4	37.1	28.3	20.1	22.2	27.3	26.0	31.2	34.7	34.3	24.9	21.9	23.6
Farmers in bank lending area who went out of business (during the year ending in June)	2.2	2.3	3.6	4.8	6.2	4.6	2.8	2.4	1.8	2.0	3.4	4.9	7.1	5.5	3.3	3.1	1.9	2.2	3.6	4.6	5.5	4.1	2.7	2.2
Liquidation categories for area farmers (during the year ending in June):																								
Normal attrition	NA	37.7	31.3	27.7	28.9	38.4	50.2	58.5	NA	43.3	32.1	30.5	28.2	37.7	48.6	54.8	NA	39.5	35.8	29.9	33.8	43.0	58.7	65.6
Voluntary liquidation	NA	42.4	44.0	44.3	41.7	35.8	30.6	27.6	NA	38.9	45.3	46.0	41.7	36.9	35.0	30.3	NA	38.6	40.1	42.3	36.9	33.6	26.3	25.1
Legal foreclosure	NA	18.1	22.3	25.8	26.3	23.6	17.7	12.7	NA	15.8	20.7	21.9	26.3	23.4	15.4	13.1	NA	20.0	20.4	26.3	25.6	20.7	14.7	8.5
Other	NA	1.8	2.4	2.2	3.1	2.3	1.6	1.2	NA	2.4	1.0	1.5	3.8	2.1	1.0	1.8	NA	1.7	3.1	1.5	3.7	2.6	.4	.7
Banks' farm borrowers who filed for bankruptcy (during the year ending in June)	NA	NA	NA	1.5	2.2	1.4	.7	.4	NA	NA	NA	2.0	1.7	1.4	.7	.4	NA	NA	NA	1.4	2.1	1.5	.7	.3
Farmers in bank lending area who filed for bankruptcy (during the year ending in June)	.8	1.1	2.6	3.8	4.2	3.3	2.2	1.7	.4	1.0	2.6	4.0	3.9	3.3	2.4	1.5	.7	1.0	2.3	3.3	4.0	3.4	2.0	1.5

See footnotes at end of table.

Continued--

Appendix table 1--Indicators of financial stress in agriculture as reported by farm banks, by region, 1982-89[1]--Continued

Item	South[4]								Plains[5]								West[6]							
	1982	1983	1984	1985	1986	1987	1988	1989	1982	1983	1984	1985	1986	1987	1988	1989	1982	1983	1984	1985	1986	1987	1988	1989
	Percent																							
Farm loan volume delinquent 30 days or more (in June)	4.6	4.3	4.0	4.2	5.2	3.0	1.3	1.3*	3.7	3.5	4.1	4.4	6.6	2.9	1.9	1.7*	5.0	4.5	5.0	8.0	5.2	3.2	2.3	1.6*
Banks' farm borrowers who had bank financing discontinued (during the year ending in June)	6.4	4.4	4.5	6.9	8.6	5.3	1.6	.9	3.3	3.0	3.7	4.4	5.1	3.2	1.8	1.6	3.3	3.3	2.8	3.8	5.7	2.3	1.7	1.9
Farm borrowers banks expect to discontinue (during the year ending next June)	7.7	2.7	2.4	6.9	12.4	3.6	1.5	1.4	4.5	2.6	3.4	5.8	6.5	2.0	1.4	2.4	2.5	2.1	3.1	4.7	5.9	2.5	2.0	1.0
Banks' farm borrowers loaned up to practical limit (in June)	49.0	40.5	45.9	47.4	49.7	38.4	28.7	27.6	31.9	27.0	30.1	35.1	39.8	29.5	22.6	26.3	40.9	32.1	39.5	43.8	44.4	34.8	25.0	26.3
Farmers in bank lending area who went out of business (during the year ending in June)	3.9	3.1	4.4	5.6	8.9	6.5	2.7	2.6	2.1	2.4	3.8	4.9	5.6	4.2	2.7	2.2	2.2	2.3	3.0	4.3	6.3	4.6	2.7	2.1
Liquidation categories for area farmers (during the year ending in June):																								
Normal attrition	NA	22.8	22.3	19.1	17.9	23.4	32.5	53.3	NA	38.3	30.0	28.3	30.5	38.8	51.1	58.9	NA	30.2	26.7	19.1	17.7	31.5	26.8	43.4
Voluntary liquidation	NA	48.3	41.3	44.5	50.7	41.8	34.9	31.3	NA	45.5	45.5	45.2	42.5	35.2	29.5	26.1	NA	48.7	50.4	45.3	46.7	39.4	41.3	30.8
Legal foreclosure	NA	25.8	31.4	34.2	28.3	31.6	29.9	14.2	NA	15.1	23.2	23.9	24.7	23.9	16.5	13.8	NA	19.4	19.6	20.3	33.2	28.0	29.7	24.0
Other	NA	3.1	5.3	2.2	3.1	2.6	2.7	1.2	NA	1.1	1.7	2.6	2.3	2.1	3.0	1.2	NA	1.7	1.7	5.3	2.4	1.1	2.2	1.7
Banks' farm borrowers who filed for bankruptcy (during the year ending in June)	NA	NA	NA	2.0	2.5	2.0	1.1	.5	NA	NA	NA	1.0	2.5	1.2	.7	.5	NA	NA	NA	1.8	1.9	1.3	.5	.7
Farmers in bank lending area who filed for bankruptcy (during the year ending in June)	.1	1.9	4.9	5.7	6.5	5.9	3.3	2.0	.8	.9	2.3	3.7	3.9	2.6	2.0	1.9	.5	1.2	2.3	3.5	3.5	3.0	2.0	2.1

* = Data for 1989 are as of September 30. NA = Not available. [1]Data are unweighted averages of responses to the American Bankers Association midyear farm credit survey, which uses a stratified random sample. [2]CT, DE, DC, ME, MD, MA, MI MN, NH, NJ, NY, PA, RI, VT, WI. [3]IL, IN, IA, MO, OH. [4]AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV. [5]KS, NE, ND, OK, SD, TX. [6]AK, AZ, CA, CO, HI, ID, MT NV, NM, OR, UT, WA, WY. Source: *(8)*.

Appendix table 2--Indicators of financial stress in agriculture as reported by farm banks, by type of farming area, 1982-89[1]

Item	Feed and food crops								Dairy								Beef, cow-calf							
	1982	1983	1984	1985	1986	1987	1988	1989	1982	1983	1984	1985	1986	1987	1988	1989	1982	1983	1984	1985	1986	1987	1988	1989
	Percent																							
Farm loan volume delinquent 30 days or more (in June)	4.0	3.5	4.4	5.3	6.6	2.7	1.6	1.3*	3.6	3.8	5.3	6.2	5.3	2.8	1.7	1.9*	4.5	4.5	4.8	6.0	6.8	2.9	2.2	2.1*
Banks' farm borrowers who had bank financing discontinued (during the year ending in June)	3.1	2.7	3.4	4.3	5.5	3.1	1.5	1.3	3.4	3.1	3.2	5.4	5.4	2.9	1.8	1.4	2.9	3.9	3.1	3.4	5.8	3.8	1.5	1.7
Farm borrowers banks expect to discontinue (during the year ending next June)	4.4	1.9	3.2	5.8	6.6	1.9	1.5	1.4	4.4	1.9	2.7	5.4	5.8	1.9	1.7	2.0	4.0	2.4	3.3	5.8	7.9	2.7	1.5	3.2
Banks' farm borrowers loaned up to practical limit (in June)	34.5	27.2	33.9	33.0	39.2	27.5	22.3	25.9	25.4	25.7	27.4	34.6	33.8	26.2	18.7	21.1	35.0	32.5	34.9	38.0	35.0	31.3	24.3	26.6
Farmers in bank lending area who went out of business (during the year ending in June)	2.2	2.2	3.6	4.8	5.9	4.4	2.7	2.2	1.8	2.6	3.5	4.8	7.3	5.1	3.2	3.2	2.3	2.4	3.5	4.9	6.4	4.7	2.5	2.6
Liquidation categories for area farmers (during the year ending in June):																								
Normal attrition	NA	37.4	33.0	27.6	29.7	40.6	54.8	63.3	NA	41.3	31.8	32.0	29.6	41.5	47.7	53.7	NA	32.4	28.0	28.9	26.9	32.9	40.9	48.7
Voluntary liquidation	NA	42.6	43.0	43.7	40.6	35.6	28.1	25.6	NA	39.1	44.2	45.3	41.2	34.5	34.8	31.2	NA	48.5	46.6	41.8	42.4	34.9	31.4	28.2
Legal foreclosure	NA	18.4	21.8	26.7	26.6	22.0	16.3	10.6	NA	16.8	20.5	20.1	24.5	21.2	15.1	13.0	NA	18.0	22.5	28.8	28.5	27.8	22.7	21.2
Other	NA	1.8	2.4	2.0	3.1	1.8	.9	.6	NA	2.5	2.4	2.6	4.7	2.8	2.5	2.1	NA	1.8	1.1	.5	2.1	4.4	5.0	1.9
Banks' farm borrowers who filed for bankruptcy (during the year ending in June)	NA	NA	NA	1.4	2.3	1.6	.7	.3	NA	NA	NA	2.2	1.4	1.1	.9	.5	NA	NA	NA	1.3	1.4	1.3	.6	.7
Farmers in bank lending area who filed for bankruptcy (during the year ending in June)	.7	1.0	2.2	3.6	4.3	3.5	2.0	1.6	.5	.9	3.9	4.1	3.3	2.6	2.5	1.6	.9	1.3	2.0	4.9	3.6	3.1	2.4	2.3

See footnotes at end of table.

Continued--

Appendix table 2--Indicators of financial stress in agriculture as reported by farm banks, by type of farming area, 1982-89[1]--Continued

Item	Beef, feedlots								Hogs, other livestock								Cotton							
	1982	1983	1984	1985	1986	1987	1988	1989	1982	1983	1984	1985	1986	1987	1988	1989	1982	1983	1984	1985	1986	1987	1988	1989
	Percent																							
Farm loan volume delinquent 30 days or more (in June)	3.4	3.7	4.5	6.7	4.3	2.5	0.8	1.2*	3.0	3.8	3.3	4.5	4.3	2.1	1.3	2.6*	5.2	3.9	6.5	4.1	4.6	2.3	1.4	1.0*
Banks' farm borrowers who had bank financing discontinued (during the year ending in June)	2.8	2.2	5.1	6.0	5.7	2.6	2.2	1.3	2.8	2.6	2.7	3.8	3.9	2.7	.9	1.7	5.2	3.5	3.7	8.6	7.1	4.7	2.2	1.2
Farm borrowers banks expect to discontinue (during the year ending next June)	3.8	1.6	4.7	7.8	5.7	2.0	1.8	1.4	7.1	3.7	2.9	4.7	4.2	2.0	1.2	1.9	5.7	2.5	1.8	7.2	11.6	2.1	1.9	1.9
Banks' farm borrowers loaned up to practical limit (in June)	37.9	27.8	43.4	40.1	42.6	31.6	24.7	28.1	27.4	29.8	25.7	35.0	28.1	24.4	22.7	19.9	41.2	33.9	56.3	50.1	52.1	44.3	26.6	29.7
Farmers in bank lending area who went out of business (during the year ending in June)	1.7	1.9	3.9	4.1	5.4	4.6	3.7	2.0	1.6	1.9	3.5	4.5	4.8	3.4	2.1	2.4	4.8	2.8	3.0	6.7	8.1	5.3	3.1	2.1
Liquidation categories for area farmers (during the year ending in June):																								
Normal attrition	NA	36.6	21.9	15.5	18.7	32.0	51.1	52.9	NA	44.9	31.1	21.6	36.3	37.9	41.4	55.8	NA	26.4	19.3	18.2	17.2	22.6	48.4	56.0
Voluntary liquidation	NA	44.5	45.4	60.1	44.0	39.0	34.7	40.0	NA	38.7	49.5	51.9	42.9	35.9	45.7	28.8	NA	53.6	53.7	50.1	47.2	36.7	27.6	28.8
Legal foreclosure	NA	18.3	30.7	22.0	34.8	27.9	14.3	7.1	NA	14.5	17.1	22.2	20.5	25.3	11.4	14.4	NA	19.1	25.3	28.8	30.7	38.2	23.0	14.5
Other	NA	.6	1.9	1.8	2.5	1.1	0.0	0.0	NA	.6	2.3	4.4	.3	1.0	1.4	1.1	NA	.3	1.7	2.9	4.9	2.5	.9	.8
Banks' farm borrowers who filed for bankruptcy (during the year ending in June)	NA	NA	NA	.6	3.5	1.3	.6	.5	NA	NA	NA	1.9	.9	.8	.3	.3	NA	NA	NA	1.6	4.8	2.0	1.3	.9
Farmers in bank lending area who filed for bankruptcy (during the year ending in June)	.4	.5	3.1	2.1	6.1	2.6	2.3	1.9	.7	2.2	1.5	3.0	3.2	2.6	2.1	1.8	1.7	.7	2.4	3.4	5.9	3.9	2.5	2.5

* = Data for 1989 are as of September 30. NA = Not available. [1]Data are unweighted averages of responses to the American Bankers Association midyear farm credit survey, which uses a stratified random sample. Source: *(8).*

Appendix table 3--Distribution of farms by annual sales, selected years, 1970-90
The shift toward larger farms is seen in both the numbers and the share of sales. But, the increases were at the expense of smaller farms, which bore the brunt of the losses.

Item and year	Under $10,000	$10,000-$39,999	$40,000-$99,999	$100,000-$499,999	$500,000 and over	Total
			Thousands			
Number of farms:						
1970	2,067	664	165	49	4	2,949
1975	1,431	629	316	134	11	2,521
1980	1,243	571	355	247	24	2,440
1985	1,100	527	341	299	26	2,293
1989	1,019	525	303	285	39	2,171
1990	991	525	297	291	39	2,143
			Percentage distribution			
Share of U.S. farms:						
1970	70.1	22.5	5.6	1.7	0.1	100.0
1975	56.8	25.0	12.5	5.3	.4	100.0
1980	51.0	23.4	14.5	10.1	1.0	100.0
1985	48.0	23.0	14.9	13.1	1.1	100.0
1989	46.9	24.2	14.0	13.1	1.8	100.0
1990	46.2	24.5	13.9	13.6	1.8	100.0
Share of total cash receipts from farm marketings:						
1970	13.4	31.3	21.7	18.9	14.7	100.0
1975	5.2	16.9	24.8	30.7	22.3	100.0
1980	3.0	9.9	18.7	39.5	28.8	100.0
1985	2.5	7.8	15.8	43.6	30.3	100.0
1989[1]	2.2	7.3	12.9	37.1	40.5	100.0
			Percent			
Change in farm numbers:						
1970-80	-39.9	-14.0	115.2	404.1	500.0	-17.3
1980-90	-20.2	-8.0	-16.2	17.4	63.7	-12.1

[1]Data for 1990 not available.
Source: *(71)*.

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